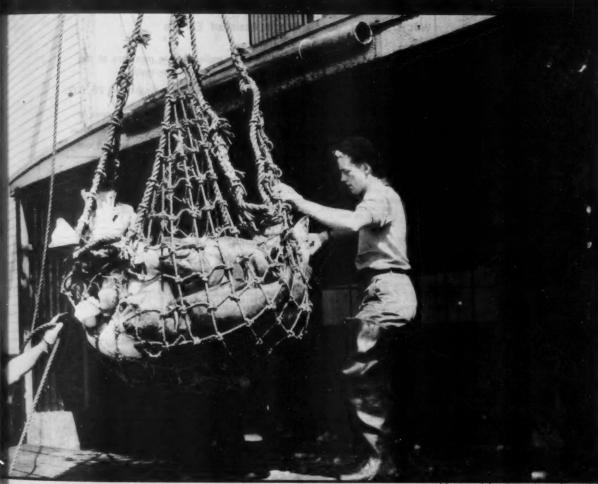
COMMERCIAL DEVIEW FISHERIES LEVIEW



Vol. 12, No.5

MAY 1950

FISH and WILDLIFE SERVICE United States Department of the Interior Washington, D.C.



COMMERCIAL REVIEW &



A REVIEW OF DEVELOPMENTS AND NEWS OF THE FISHERY INDUSTRIES PREPARED IN THE BRANCH OF COMMERCIAL FISHERIES

A. W. Anderson, Editor R.T. Whiteleather, Associate Editor Wm. H. Dumont and J. Pileggi, Assistant Editors

Applications for COMMERCIAL FISHERIES REVIEW, which is mailed tree to members of the fishery industries and allied interests, should be addressed to the Director, Fish and Wildlife Service, United States Department of the Interior, Washington, 25, D.C.

The contents of this publication have not been copyrighted and may be reprinted freely; however, reference to the source will be appreciated. The Service assumes no responsibility for the accuracy of material from outside sources. The printing of this publication has been approved by the Director of the Burgau of the Budget, December 15, 1949

CONTENTS

COVER: UNLOADING HALIBUT FROM A FISHING BOAT AT KETCHIKAN, ALASKA. THE PACIFIC HALIBUT SEASON OPENED ON MAY I. (SEE PAGE 34 OF THIS ISSUE.)

ORGANIZATION AND SCOPE OF ICELAND'S FISH-INSPE	CTION	SERVICE. BY MAGNUS KR. MAGNUSSON	1
THE FISHERIES POTENTIAL ALONG THE EAST COAST OF			11
EXPERIMENTAL PRODUCTION OF BLOWN MENHADEN OIL,			
	PAGE		PAGE
RESEARCH IN SERVICE LABORATORIES		FOREIGN (CONTD.):	
TECHNICAL NOTE NO. 3 - FISH HEAL IN ANIMAL		CANADA (CONTD.):	
AND POULTRY FEEDING	24	FISHING EFFICIENCY OF DORY SCHOONERS AND	
TRENDS AND DEVELOPMENTS:	25	OTTER TRAWLERS	53
ADDITIONS TO THE FLEET OF U. S. FISHING		POSSIBLE MARINE SOURCES OF INSULIN BEING	
VESSELS	25	STUDIED	54
ASTORIA (OREGON) CURTAILS FISHING ACTIVITIES	25	NEWFOUNDLAND'S LOBSTER FISHERY, 1949	55
ECA PROCUREMENT AUTHORIZATIONS FOR FISHERY		GATHERS DATA ON ATLANTIC SEALS	56
PRODUCTS	26	CHILE:	
FEDERAL PURCHASES OF FISHERY PRODUCTS		GERMAN-CHILEAN COOPERATIVE PLANS FOR	
FISHERY BIOLOGY NOTES	27	FISHING INDUSTRY	57
FISHERY FOR TRASH FISH IN NEW ENGLAND		SWISS-CHILEAN GROUP CHARTERS GERMAN	91
GULF EXPLORATORY FISHERY PROGRAM	30	FISHING CUTTERS	57
NATIONAL FISHERIES TRENDS AND OUTLOOK.	30	CUBA:	31
APRIL-JUNE 1950	31		
NORTH ATLANTIC FISHERY INVESTIGATIONS	33	SPINY LOBSTER EXPORTS UNDER LICENSE CON-	-
NORTHWEST PACIFIC EXPLORATORY FISHERY	33	TROL	57 58
	20	OUTFITS A VESSEL FOR MARINE RESEARCH	20
PROGRAM	33	ECUADOR:	
PACIFIC HALIBUT FISHERY REGULATIONS FOR 1950		CONDITIONAL LOAN GRANTED FOR FISH CANNERS	28
PACIFIC OCEANIC FISHERY INVESTIGATIONS	35	EGYPT:	
SEALSKIN PRICES ADVANCE AT ANNUAL SPRING		SPONGE FISHERY, 1949	60
AUCTION	41	MARKETING SITUATION FOR EGYPTIAN SPONGES	
SOUTH PACIFIC FISHERY INVESTIGATIONS	41	IN GREECE	6Q
PROPOSED REVISION OF FEDERAL SPECIFICATIONS		GERMAN FEDERAL REPUBLIC:	
FOR CANNED SALMON	42	FISH CONSUMPTION	61
UNITED STATES AND ALASKA COMMERCIAL FISH-		DEFLATION AFFECTS GERMAN FISHERIES	63
ERIES, 1949	42	SMALLER GERMAN IMPORTS OF FISHERY PRO-	
UNITED STATES FISH OIL EXPORTS LARGEST ON		DUCTS FROM ICELAND PLANNED	53
RECORD	44	UNITED STATES TRAWLERS IN GERMAN FISH-	
WHOLESALE AND RETAIL PRICES	45	ERIES	64
WORLD STATUS OF TIN	50	GERMANY (RUSSIAN ZONE):	
FOREIGN:	51	DRIFTERS TO BE TURNED OVER TO SASSNITZ	
ARGENTINE REPUBLIC:		FISHERY	66
SEEKING GERMAN FISHING EXPERTS	51	HONG KONG:	
BRAZILI		FISHING INDUSTRY, 1949	- 66
INTERNATIONAL AGREEMENT FOR THE REGULATION		I CELAND:	
OF WHALING APPROVED BY BRAZILIAN CONGRESS.	51	EFFECTS OF ECA APD ON ICELAND'S ECONOMY.	66
BRITISH NORTH BORNEO:		FURTHER DEVALUATION OF THE KRONA	67
REVIEW OF THE FISHERIES, 1949	51	ICELAND RATIFIES NORTHWEST ATLANTIC	-
CANADA:	2.	FISHERIES CONVENTION	68
GOVERNMENT S PLANS FOR THE DEVELOPMENT OF		NEWSPAPERS CONTINUE TO STRESS EXTENSION	
THE COMMEDCIAL FIGHERIES	52	OF TERRITORIAL MATERS	68

COMMERCIAL FISHERIES REVIEW

May 1950

Washington 25, D.C.

Vol.12, No.5

ORGANIZATION AND SCOPE OF ICFLAND'S FISH-INSPECTION SERVICE

By Magnús Kr. Magnússon **

INTRODUCTION

Considerable interest in the standardization of quality for fresh and frozen fishery products has developed recently in this country. A bill (H. R. 7441) has been introduced at this session of Congress on the establishment of standards for frozen fishery products. One or two States have also expressed interest in setting up standards for certain types of fishery products.

Several countries already have developed some type of fish-inspection service for fishery products. Canada recently has been developing and expanding its fish inspection service. Iceland and Norway also, for several years, have been developing and expanding quality standards and inspection for fishery products. In view of the interest for fishery-products standards, what Iceland has done along these lines probably will be of interest to the fishing industries in the United States. (Editors)

OBJECT OF INSPECTION

A new Act dealing with fish inspection, processing, curing, and exportation of fish was passed by the Althing on March 23, 1948. Article 1 of the Act reads:

"All fish exported from Iceland shall be inspected by officially appointed fish inspectors and shall be under their supervision. Exempt shall, however, be small parcels, of 50 kilos or less, sent as gifts.

"Fish exported in the ships that caught it shall be exempt from inspection, if it was not landed in this country. The Ministry may, however, issue regulations concerning such exportation, after having consulted the Fish Inspector General.

"The Ministry may order inspection of fish sold as an article of commerce in the Icelandic market,"

The object of the Icelandic Fish Inspection Agency is to insure an article of the best possible quality and to avert quality faults that might prejudice the sale of the Icelandic fish in the foreign market. With this object in view, export fish shipments have to be stopped occasionally, or observations on them included in the inspection certificates that go with the shipments. The Agency works with the aim that such occurrences should be as few as possible. Success in this matter depends, however, on the production of prime-quality products, and that their treatment and storage be as perfect as possible.

Giving instructions is the principal work of the inspection service. This is mainly done while the fish is being processed, but also partly by inspecting *Chief Inspector, Icelandic Fish Inspection Agency, Reykjavik, Iceland.

the completed article and calling attention to the faults and showing how repetition of these may be avoided.

Adequate education in handling, storing, holding, processing or shipping fresh, frozen, or processed fish would preclude any faults being found with the



AIR VIEW OF REYKJAVIK, ICELAND.

fish when it is inspected in its final marketing form. The producer of a shipment of fish turned down by the inspectors is bound to suffer a financial loss. As a rule, however, only a very small quantity is condemned by the inspectors, and since the defect is often insignificant, the shipment can be allowed to proceed on its way with an inspection certificate stating the shipment's quality deficiency. Normally this would mean some reduction in the final price realized for the shipment.

While the inspection certificates should be a just assessment

of the quality of the goods, they should also be an inducement to the producer to maintain the highest possible standard which is obtainable only by demanding increased inspection and instruction. The producer maintains, and justly so, that the inspection service should insure the production of prime-quality goods. But if there is a failure in this respect, no matter whether the fault lies with the inspection service or the producer, it is incumbent upon the former to see to it that the unsatisfactory cases do not affect those producers who offer a high quality product. Any laxity in this respect would be unfair to the producer who conscientiously adheres to the inspection standards, thus maintaining a high standard for the Icelandic fish industry. It might even affect the entire Icelandic fish market abroad.

Since Iceland's economic position depends upon the production and the sale of fishery products, the Icelandic Fish Inspection Agency is not merely a protection for foreign nations who buy Icelandic products, but an equally necessary insurance for Icelandic fish producers and for the Icelandic nation.

ORGANIZATION OF INSPECTION AGENCY

In the Fish Inspection Agency there are, at present, eight active chief inspectors, in addition to the Inspection Director General, who is the head and the organizer of the whole Agency.

The Southwestern part of Iceland has four chief inspectors stationed at Reykjavik. Besides his duties as chief inspector, one of them is commissioned to experiment with improved working methods and better processing, and to keep himself and the inspectors informed of similar matters with the neighboring nations through the study of literature and periodicals. Western Iceland has one chief inspector stationed at Isafjord. Northern Iceland has one stationed at Akureyri, and eastern Iceland one at Seydisfjord, while there is also a chief inspector stationed at the Westman Islands (Vestmannaeyjar).

Upon the completion of each inspection tour, the chief inspectors report upon the quality of fish produced by each individual producer, and if any faults have been found, they are described in these reports, giving their causes and the way in which they affect the quality of the product. The report contains, in addition, advice as to how the faults may best be remedied and their recurrence prevented. One copy of these reports is sent to the producer, while the other is retained at the head office of the Fish Inspection Agency. Thus, extensive information is gathered about the processing and the quality of the fish produced for export.

According to the Fish Inspection Act of 1948, the Minister of Fisheries appoints the Inspection Director General and the chief inspectors, in consultation with the Director General. They are all required to take an oath that they will obey orders governing their work, and conscientiously and diligently attend to their official duties.

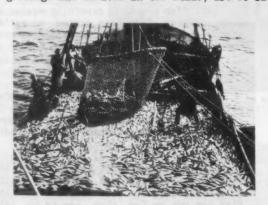
Article 11 of the Act says:

"Should it be established that inaccuracies in a certificate issued by the Inspection Director General or a chief inspector must be deemed due to culpable carelessness or negligence, he shall be responsible for such loss as may ensue. In addition the Ministry may peremporily remove him from his post. He shall, however, be deemed blameless if he can prove that some subordinate of his was at fault. In that case the subordinate, to whom it was due, shall be held responsible for the loss. In addition to that responsibility they may then peremptorily be deprived of their post or their appointment.

"Tr other respects, infringement of this Act by inspectors and chief inspectors shall be dealt with in accordance with the Penal Code."

INSPECTION OF SHIPS AND BOATS

Chief inspectors see that the holds of fishing vessels and boats, as well as gratings and shelves in the holds, are so fitted as to facilitate their clean-



ICELANDIC FISHING VESSEL BRAILING HERRING.

shall be so constructed as to be easily kept clean. The same applies to the space underneath the gratings.

ing. Holds shall be so fitted as to obviate the danger of the fish being bruised on pieces of the framework or by protuberances. In the bottom of the holds shall be closebarred gratings, so fash-ioned that the laths on which they rest are laid longways along the hold, in order that the flow of water down and aft may be unobstructed. Boats that during a fishing trip keep their catches on deck shall also have gratings on that part of the deck where the fish are kept. All gratings The forward and aft bulkheads of the hold must be tight and sufficiently insulated to prevent heat penetrating from the crew's quarters or from the engine room. If the depth of the hold exceeds one meter (a little more than three feet),

it is to be fitted with shelvings when fish is stored with ice, with each layer of fish never exceeding one meter. In the smaller boats, only slightly exceeding one meter in depth, the hold may, however, be filled without the use of shelvings.

Holds of fishing boats must be carefully cleaned and scrubbed after each fishing trip. The inspector may even demand that a disinfectant be used, if deemed necessary.



BRAILING A GOOD CATCH OF HERRING.

It is highly important that all fish caught be properly handled on board all fishing vessels.

All fish are to be bled by cutting the cervical veins on both sides as soon as the fish has been brought on board.



ICELANDIC TRAWLER IN FOREGROUND SHOWS DECK LOADED WITH GROUNDFISH, STEAM TRAWLER CAN BE SEEN IN BACKGROUND.

In boats that do not land their catches daily, all fish are to be gutted on board as soon as possible. Boats landing their catches daily need not necessarily gut the fish on board, though during the summer season, it is desirable that all fish be gutted and washed as soon as they have been caught.

All fish are to be carefully washed as soon as they have been gutted no matter whether this is done on board or ashore. Great care is to be taken that no traces of liver, intestines, or blood remain in the abdominal cavity.

Fish must never be hooked or pierced with forks or other implements except in the head. Anything that may bruise or otherwise damage the fish shall also be studiously avoided.

In boats that do not return daily, the fish must be gutted and put on ice in the hold before rigor mortis sets in. When the fish are put on ice, they are to be laid with the belly side down, and flatfish with the cut facing down (the white side up).

Chief inspectors shall at each time determine the quantity of ice to be used for the icing of fish in boats, depending upon the season of the year and the equipment of the ship.

SUPERVISION AND INSPECTION OF FROZEN FISH

At each freezing plant, a frozen-fish inspector is posted. It is incumbent upon him to see that all requirements respecting the handling and the quality of the fish as well as the equipment of the plant are complied with. In these matters, he is responsible to the chief inspectors and the Inspection Director General.

The inspector may serve the freezing plant in other capacities at the same time, e.g., by filling the post of a foreman or doing manual work, as long as he is in a position to carry out his inspection duties efficiently. He must always be present whenever fish is being processed in any manner. If unable to attend in person, he shall appoint someone to act on his behalf, and shall be responsible for the work of his alternate or substitute.

Inspectors at freezing plants shall forthwith contact chief inspectors or the Inspection Director General whenever a problem arises in the performance of their duties which they feel cannot be solved by them.

If a freezing plant employe entrusted with inspection duties is found neglecting his duties, or if he shows himself otherwise unfit for the task, the Inspection Director General may appoint some other person to devote himself to the inspection exclusively.

Frozen-fish inspectors are appointed by the local Chief of Police on the recommendation of the Inspection Director General.



tion of the Inspec- weighing and packing line in an icelandic filleting plant. At the LEFT tion Director Gen- can be seen some of the filleting lines.

Chief inspectors visit the quick-freezing plants as frequently as possible for the purpose of supervising the work of the inspectors. Supervision consists of first examining the raw material and then going through the whole process of handling it, paying close attention at every stage of its handling, and correcting any mistakes that may have been made.

If the plant has been using other packing systems than the one in process at the time of the chief inspector's visit, that fish previously processed is inspected in its completed condition without being thawed out. This is a safe and expeditious method, entailing no expense for the producer, as no damage need be done

to either the fish or the wrappings. In order to be able to inspect the fish efficiently in its frozen condition, it is essential that the chief inspector should recognize the more common types of defects in frozen fish. To enable him to do so, the chief inspector undergoes a special course of training and is thereafter continuously kept up to date as required by the constant progress of the industry.

Duties of Chief Inspector: The chief inspector's work is indeed supervision, but first and foremost it is the instructing and advising of ordinary inspectors to whom is entrusted the actual work of inspection. The chief inspector can inspect only a fraction of each plant's production, and for that reason, great emphasis is put on the inspector's qualifications as even a minor fault may often prove very costly.

When the fish is shipped, the chief inspector examines it for the last time, principally looking for storage faults. The producer also has his own stevedore in each ship, whose business it is to see that the packings of the fish are sound and clean, that the right kind of fish and packings are being put on board the ship, and that the stowing is done in the proper manner.

No chief inspectors, inspectors, or stevedores are accepted by the Fish Inspection Agency unless they have been through a course of training where the handling of frozen fish was taught. Such courses of instruction have been held during the past two years.

Quality Faults: It would take up too much space and it would be difficult to include the official regulations concerning frozen fish, since these are continuously being amended to keep pace with developments. But a list of common quality faults which inspectors must guard against or rectify is given here. It is not an exhaustive catalog of such faults or oversights as may occur in the handling and storing of frozen fish, but they are the most common and are the ones which are deemed most discernable by inspectors.

Defects in the raw material:

- Putrifaction,
- The flesh of the fish bruised or torn, whatever the cause.
- 3. The fish bloodshot because of imperfect bleeding. Blood bruises in the fish.
- 5. The fish pierced br a hook, without blood having
- gathered in the cut.

 6. Black filaments in the fish.
- Worms in the fish. The fish excessively lean,

Possible working faults:

- 1. Micus on the skin of the fish.
- Out surfaces unclean,
- Careless gutting of fish frozen whole. Inexact grading of flatfish frozen whole.
- Scales or similar particles on the surface of cuts. Fillets not cut the right size to fit the cartons.
- 7. Loose particles of fish in the cartons.
- Bones in fillets that should be boneless, Parts of the belly flap included in the fillet; where this should not be so.
- 10. Particles of skin on fillets that should be
- skinless, 11. Underweight.
- 12. Any irregularities in the packing, e.g., not the right number of pieces in a 1-1b, carton, the wrong number of wrappers in a 5-1b. carton, the wrong number of flatfish fillets in a 7-1b. carton, etc.

- 13. The fillets so laid down as to make the skin touch
- a cut surface. The top layer in a flatfish carton not correctly 14. laid.
- Empty space in the carton.
- Marking labels or check labels lacking. Frozen whole flatfish incorrectly laid in the block,
- The parchment and cellophane sheets creased, torn, or failing to cover the fish properly,
- 19. Packing unclean.
- 20. Marking of packages unsatisfactory.

 21. Too much fluid has escaped from the fish while it awaited freezing.
- 22. Packages have lost their right shape, e.g., in the
- freezing machinery.
 The fish has become desiccated in the freezing
- process.

 24. The fish has frozen slowly.

 25. The ice cover on the block not clean.
- 25. The ics cover on the block not cream. 26. Outer covers not clean, or they are torn, or do not shut properly.

Storage defects:

- The fish desicoated,
- The fish rancid,
 The fish is tough (in many cases this also means desicoation).
- 4. Tissues in the fish ruptured through the action of the ice crystals. (If the fish is stored too long, the ice crystals increase in sise and more moisture escapes from the fish when it is themed, which means losses both in taste and mutritive value).

INSPECTION OF DRIED AND SALTED FISH

Inspection of dried and salted fish is of a somewhat different kind. Its handling is entrusted entirely to the producer until the time of packing for exportation, when the fish is inspected by official inspectors, working under chief inspectors. These inspectors are appointed by the local chiefs of police on the recommendation of the Fish Inspection Director General.

Both dried and salted fish are grouped into several classes by the inspectors, according to their quality and appearance, and in accordance with the various requirements of the different buying countries. It would take too much space to list here all the rules to be observed by the inspectors, and indeed they are no more static than those that apply to the inspection and handling of frozen fish.

Chief inspectors instruct the producers to the extent possible and as regularly as circumstances will permit. Should the fish, when inspected for packing, be found to be of inferior quality, they are put in the lower categories. The following are some of the defects that may cause this to be done and of which the inspectors are fully competent to judge:

The principal handling defects in salted fish:

- 1. Bloodshot spots caused by hooking.
- 2. Bloodshot bruises.
- 3. The general hue of the fish more or less unsatisfactory, particularly the belly flaps, owing to insufficient bleeding.
 - 4. Incorrect fashion of removing the head.
- 5. Incorrect method of splitting the fish, e.g., making too deep a cut, failing to cut right up to the tail, or not deep enough to reach the spine; various faulty cuts.
- 6. Unsatisfactory scrubbing before salting.
 - 7. Faulty method of laying the fish in the salt.
 8. Undersalting.
 - Undersal ting.

 - 9. Tears in belly flaps.
 10. The fish creased or broken after being salted.
 - 11. Not well enough rinsed after being taken out of the pickle (if pickle-salted).
 - 12. The hue of the fish impaired through the use of impure salt.

All these defects appear plainly in the fish even though they are not fully cured. If they are fully cured, they do not disappear, but most of them appear more plainly. If the fish are fully cured, the following defects may also be further developed and observed:

- 13. Unsatisfactory scrubbing.
- Insufficient pressing after scrubbing and before drying.
- Sun-balding.
- 16. Cracks caused by careless handling.

Defects developed in storage:

- 17. Red spots.
- 18. Black spots. These defects may develop in both cured and uncured fish, though rarely, except through long-term storage.
- 19. The fish is also apt to turn yellowish when stored too long.
 20. Dampness in the fish. The surface of the stacks may turn damp when winter comes and the cold weather sets in.

The principal defects developed in dried fish are due to weather conditions, for as everyone knows they are hung upquite fresh, out in the open, where they must



ISAFJÖRDHUR, A TOWN IN ICELAND.

remain in all types of weather until they have been fully dried. Their appearance mainly depends upon the kind of weather that prevailed while they were drying.

Special care must be taken that there are no parts of the fish to which the air has not free access, for if the fish touch anything, they become spotty and their appearance is thus spoiled. Care should also be taken to open and empty out the spine of fish that are not split.

The main defects which develop in storage are dampness and mould, due chiefly or entirely to unsuitable storage accommodations.

The Fish Inspection Agency is not concerned with other methods of treatment than those enumerated above.

INSTRUCTIONS REGARDING HANDLING AND PACKING OF FISH IN THE QUICK-FREEZING PLANTS

The following are the instructions for quick-freezing plants for handling and packing fish and fillets for export purposes:

Fillets of All Fish, Except Flatfish: Fillets, parchment-wrapped in 7-lb. blocks; 8 blocks per container:

- The fillets shall be unskinned (skins on) with small pieces of bones necessarily severed in filleting, but all other bones, belly wall or flaps and substantially all discoloured flesh shall be removed.
- The fillets shall be cut the right size for each block, so they can be packed without being folded.
- The fillets shall not be packed so as to have the skin side of a fillet touch the cut surface of a fillet more than necessary.
- 4. Each block shall have a slip or label or be otherwise clearly marked with brand or identification number of the producing company.
- The freezing of the fillets must not take more than 3 hours, and the temperature of the fish shall then not be higher than -18° C. (-0.4° F.).
- 6. Each block shall be glazed by dipping it twice into clean water immediately on being removed from the freezer. The temperature of the water shall be as close as possible to 0° C. (32° F.).
- The blocks must not lose their right shape or be desiccated in the freezing process.

8. All packages and containers must be clearly marked and the fish covers must be clean and properly shut. Each container shall be secured with three metal strappings.

Fillets packed in 2-lb. cartons:

- The fillets shall be unskinned and containing only the small pieces of bones necessarily severed in filleting, but all other bone, belly wall or flaps and substantially all discolored flesh shall be removed.
- The fillets shall be cut the right size to fit the cartons, so they can lay straight and not require folding of the ends.
- 3. The skin must not touch the cut surface.
- 4. Each carton shall have one check label with a number or letter identifying the producing company.

Fillets packed in 5-lb. cartons:

- The fillets shall be skinned and boneless, and all discolored flesh shall be removed.
- Each carton shall contain six cello-wrappings, three on the bottom of the carton and three on the top.
- In each carton shall be one check label, and in each wrapping, one
 marking label, unless the cello-paper is marked.

Fillets packed in 1-1b. cartons:

- The fillets shall be skinned and boneless, and all discolored flesh shall be removed.
- 2. Each carton shall contain one cello-wrapping unless it is overwrapped.
- 3. Each carton shall have one check label.

<u>Flatfish</u>: Fillets of plaice and lemon sole packed in 7-lb. cartons; packed 8 per each container:

- All fillets of flatfish shall be cut from whole fish of not less than 1-1/4 lbs. in weight.
- The fillets shall be boneless with skin and belly wall or flaps, but all discolored flesh shall be removed.
- 3. The fillets shall be classified by weight as follows:

```
fillets = 50-56 per each 7-1b. carton.
2033
           " = 41-45 "
" = 35-37 "
" = 30-34 "
                                  7- "
                = 26-28 "
                                  4
455%
                = 24-25
              = 22-23 "
            99
                = 20-22 "
     10
           98
                = 18-19
               = 17-18 "
63
     99
            " = 15-16 "
          " = 14-15
                                     11
                                  7-
            99
                = 12-14
8-12 "
                = Large
           99
                and over = Extra large
```

- 4. The fillets shall not be laid so as to have the white skin or cut surface touch the dark skin.
 - 5. All cartons and containers must be clearly marked.
 - 6. Each container shall be secured with three metal strappings.

Whole-frozen plaice and lemon sole:

- The fish shall be satisfactorily gutted, care being taken not to leave any liver, guts, or blood in the belly cavity.
- After the fish has been washed, it shall be packed immediately and placed into the freezer.
- 3. The fish shall be classified by weight as follows:

9 oz. to 3/4 lb. marked small
3/4 lb. " 1 " " medium
1 " " 2 lbs. " large
2 lbs. & over " extra large.

- 4. The fish shall be packed unwrapped, in 7-lb., 14-lb., 21-lb. and 28-lb. blocks; eight, four, three, and two or three per container, respectively.
- The fish shall be laid in the blocks so that the white skin does not touch the dark side more than necessary.
- Each block shall have a slip or label or be otherwise clearly marked with the brand or identification number of the producing company.
- 7. Each container shall be secured with three metal strappings.
 - 8. If the fish is not to be shipped, it is advisable to store it unpacked. This makes it easy to detect storage defects. If there are none, it can be reglazed.



FISH FACTS

DO YOU KNOW . . .

That herring is the most abundant food fish in the world . . .

--Fishery Leaflet 132

THE FISHERIES POTENTIAL ALONG THE EAST COAST OF MEXICO^{L/}

By Milton J. Lindner*

INTRODUCTION

The purpose of this report is to point out what I think to be the potential of some of the fisheries adjacent to the east coast of Mexico and, in particular, those fisheries which I believe might be expanded. When and how these fisheries will be expanded is impossible to state as that will depend entirely on economic conditions. To have a fishery, two important requirements must be fulfilled:

- 1. The fish must be present.
- 2. There must be a profitable market for the fish.

The first is a biological requirement; the second is an economic requirement. In this report, I shall confine myself to the first or biological requirement.

GENERAL OBSERVATIONS ON EAST COAST FISHERIES POTENTIAL

In the sea, as on the land, there are rich areas and poor areas, there are verdant valleys and there are deserts. Since the sea is not uniform in its production of fish, it cannot be justifiably stated that because one country has so many more miles of coast line then another, the former country should produce so many more tons of fish than the one with a shorter coast line. Such a comparison and conclusion would result in erroneously comparing the productive potential of a desert with that of a verdant valley. This is not to infer that the east coast of Mexico is a marine desert; on the other hand, neither is it a verdant marine valley. I believe that it lies somewhere between these extremes, more probably closer to the lower than the upper extreme, but exactly where will not be known until it is fished extensively.

Unfortunately, the science of fishery biology has not yet progressed to the stage where the productivity of a fishery, let alone that of a general area, can be determined precisely. At present, the only means available for determining fisheries productivity is by actual intensive commercial fishing and by rough approximation derived from exploratory fishing and from ecological or environmental observations.

My conclusions with respect to the waters adjacent to the east coast of Mexico are based primarily on ecological observations now available and, to some extent, on exploratory fishing. However, most of this type of work still remains to be done in the Gulf of Mexico. It is probable, however, that this gap in our knowledge will, within the next few years, be filled.

Aquatic Biologist, Office of Foreign Activities, U. S. Fish and Wildlife Service and Chief U. S. A. Fishery Mission to Moxico, American Embassy, Mexico, D. F.

Adapted from an address delivered on March 5, 1950, at a meeting of La Academia de Ciencias de Veracruz, Veracruz, Mexico.

With the foregoing generalities understood, I shall attempt to evaluate the potential of some of the fisheries along the east coast of Mexico. Since the available data is very limited, no attempt will be made to place them in the order of importance. The fisheries to be discussed will be divided merely into two main categories:

- 1. Those now fished to some extent.
- Those not presently fished to any appreciable extent,

FISHERIES NOW IN PRODUCTION

Shrimp Fishery: Of those fisheries now in production, the shrimp (camarón) fishery is the most important along the east coast of Mexico, both on the basis of monetary return and quantity produced. Over 6.6 million pounds of shrimp are taken annually from this area. The major production comes from the recently inaugurated fishery (1946) in the Gulf of Campeche, with lesser quantities from the States of Veracruz and Tamaulipas. With the exception of the area between Tampico and Tuxpam, the fishery is based principally upon the common or white shrimp (Penaeus setiferus). In the Tampico-Tuxpam area, small, immature grooved shrimp (apparently mostly P. duorarum and P. aztecus) are taken in the lagoons.

The white or common shrimp (P. setiferus) along the northern coast of Tamaulipas, to a certain extent, migrate between Mexico and the United States. By means of tagging experiments conducted in 1947, it has been determined that shrimp along the northern Tamaulipas coast move northward in the spring. It is probable, though not established, that there may be a southward movement from Texas to Tamaulipas during late fall and winter. Most probably, the Gulf of Campeche population is local, depending upon the marghes of Tabasco and Campeche for nursery grounds.

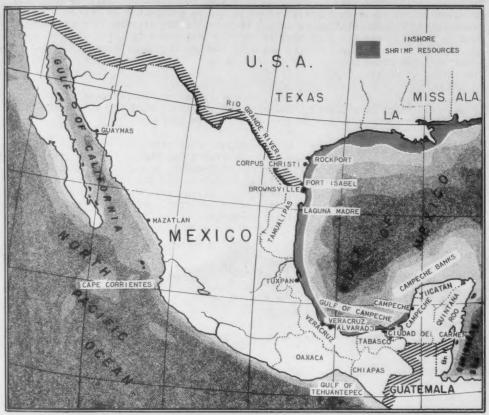
From all indications it seems likely that the white shrimp has reached its maximum production in the Campeche area. There is a possibility of an increased production of this species from Tamaulipas, but probably not to any great extent.

I feel certain, on the other hand, that there can definitely be an increase in the production of the grooved shrimp (P. duorarum and P. aztecus). The adults of these species of shrimp tend to inhabit deeper waters than do the adults of the white shrimp (P. setiferus). The grooved shrimp are darker in color than the white and, until recently, as a consequence of this difference in color, were not readily acceptable in the markets of the United States, where the vast majority of the shrimp is consumed. During the past year, however, as a result of educational campaigns conducted by the United States Fish and Wildlife Service and the fishing industry, there has been an increasing demand for the grooved shrimp. Within the past year, a fishery for them has been developed off Brownsville, Texas; and within the past few months, another has sprung up near Key West, Florida.

Along the east coast of Mexico the areas most likely to produce these shrimp in abundance lie between the mouth of the Rio Grande River and Campeche in depths between 30 and 100 fathoms.

Blue Crab Fishery: Another invertebrate, the production of which I believe can be expanded in this same area, is the blue crab (jaiba), belonging to the genus Callinectes. This crab is now taken in small quantities in the area between Tampico and Alvarado for local consumption and for shipment to the capital. The present production seems to be limited entirely by the demand. If more markets could be developed, there is no doubt that the production of blue crab could be increased many fold.

Oyster Fishery: Still another invertebrate, the oyster (ostion), is capable of increased production. The oyster, nevertheless, is peculiar in certain respects. It is one of the few marine animals in Mexico for which the demand exceeds the supply; also it is one of the few marine animals which can be successfully cultivated.



INSHORE SHRIMP RESOURCES OFF THE EAST COAST OF MEXICO AND THE GULF COAST OF THE UNITED STATES ARE INDICATED ON THE MAP. THE MAJOR SHRIMP PRODUCTION OF THE MEXICAN EAST COAST COMES FROM THE GULF OF CAMPECHE AT PRESENT.

It is probable that the amount of oysters along the east coast of Mexico is less than it was some years ago. This has been brought about by a combination of factors, including excessive fishing, lack of cultivation, and environmental changes. The influence of environmental changes on the supply of oysters cannot be overlooked. In various places in Mexico, apparently also in Texas, it seems that the influence of man through deforestation and poor grazing practices has been detrimental to the oysters. Lagoons, which previously produced quantities of oysters, are now subject to flash-floods which lower the salinity of the water sufficiently to cause heavy oyster mortality.

In spite of these changes, however, I believe that the production of oysters can be increased by means of cultivation. At present oyster culture is not practiced in Mexico, which is unfortunate, as generally with oysters the best spawning areas are not the best growing areas. In many parts of the world, it has been found advantageous and profitable to collect young oysters in one area and transport them to another area in order to grow them for market. There is no reason to suspect that these same practices would not be profitable in Mexico. Through research and experimentation it should be possible to determine the best areas from which to gather the seed oysters and the best areas in which to grow them for market. At the same time studies could be carried out to determine the most practical and economical methods for collecting and growing oysters under prevailing conditions in Mexico.

Until oyster culture becomes a practice in Mexico, an increase in the supply of cysters cannot be expected. Meanwhile, a potential food for which there is a market is not being used to its best advantage in Mexico.

Spanish Mackerel Fishery: Of the marine vertebrates now being fished in Mexico, I believe the Spanish mackerel (sierra) to be one of the species for which production can be expanded considerably. At present, the Spanish mackerel is taken in quantities only in the vicinity of Veracruz. The fishing is done principally with beach seines. At present, the only market, which is very limited, is in Mexico. Frequently, a slight increase in production will cause a glut on the market and the fishermen must suspend operations.

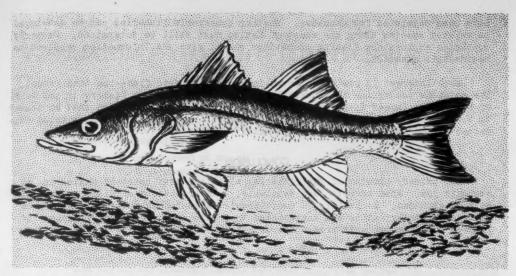


IT IS BELIEVED THAT PRODUCTION OF SPANISH MACKEREL IN MEXICO CAN BE EXPANDED CONSIDERABLY. AT PRESENT, IT IS TAKEN IN QUANTITIES ONLY IN THE VICINITY OF VERACRUZ.

This fish occurs along the entire length of the east coast of Mexico, and with an increased demand, the production undoubtedly could be greatly augmented. Possibly the solution for increased production, as in so many other instances, lies in better methods of drying and canning than those now being practiced.

Other Fisheries: Like the Spanish mackerel, various species of mullet (lisa, lebrancha, bobo) occur in abundance along the entire east coast of Mexico. Again, like the Spanish mackerel, the mullets can be produced in greater quantities than at present. However, because these fish enter the coastal lagoons in quantity, they are fished to a greater extent than are the Spanish mackerel. For this reason it is probable that the ultimate proportional increase in production will be less for the mullets than for Spanish mackerel.

The production of robalos (robalo blanco, robalo prieto, chucumite, and constantino), I suspect, can be increased somewhat, but probably not to any great extent as apparently they now are being fished rather heavily.



ALTHOUGH THE MEXICAN CATCH OF ROBALO CAN BE INCREASED SOMEWHAT, IT PROBABLY CANNOT BE INCREASED TO ANY GREAT EXTENT SINCE THEY ARE BEING FISHED RATHER HEAVILY AT PRESENT.

I think the same applies to the sumppers (huachinangos and pargos), as well as to certain sciaenids, such as, the redfish (corvina), spotted trout (trucha del mar), croaker (croca or gurrubata), and black drum (tambor). These sciaenids are more abundant in the area between Tuxpam, Veracruz, and the Rio Grande River. South of Tuxpam they are not plentiful. The majority are now taken from the Laguna Madre in Tamaulipas. The production in Laguna Madre varies considerably depending upon whether the passes are opened or closed. At times, much of the Laguna Madre is dry. Systematic dredging operations to maintain a flow of water through the passes of Laguna Madre might possibly stabilize the production of these fish at a higher level. Whether dredging would be economically feasible remains to be determined.

POTENTIAL FISHERIES NOT IN PRODUCTION

Spiny Lobster Fishery: Of those species not now fished to any extent, the spiny lobster (langosta) of Yucatan and Quintana Roo is most likely to be subject to an early expansion. It can be classified as an exportable luxury product the sales price of which is sufficiently high to permit a margin for risk capital. The problem involved is that of catching sufficient lobsters to justify the rather large expanditures that probably will be required to process and transport them to market. The lobsters are found over a large extent off the East Coast but they are not abundant enough in any one place to warrant a large investment for a purely local operation. A method must be devised for fishing spiny lobsters over a wide area and concentrating the catches at a suitable locality for processing and shipment to market.

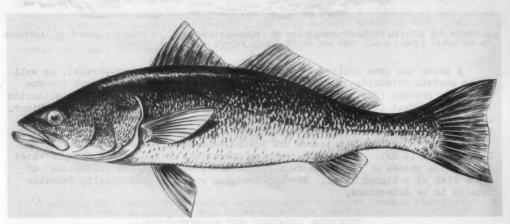
Pelagic Fisheries: Of the pelagic fish not now produced, so little is known concerning their abundance that statements made at this time are purely conjectures. In this group, most probably the herring and herring-like fish have the greatest potential. In the northern Gulf of Mexico rather important fisheries

have been developed for menhaden. Whether comparable fisheries can be developed on related species along the coast of Mexico must still be determined. Properly conducted exploratory fishing operations should give the information required to decide this question.

Much interest is now being shown in another pelagic fish--the tuna (atun). The opinions concerning the possibility of developing a tuna fishery in the Gulf of Mexico are indeed divergent. However, there is some likelihood that an answer to this problem will be attained by the exploratory fishing operations being conducted by the United States Fish and Wildlife Service.

CONCLUSION

The primary problem of the fisheries along the east coast of Mexico is an economic one. When markets are available, the production of fishery products will be expanded. Eventually, a considerable expansion in total tonnage can be expected, however, it is not anticipated that this area will yield tonnages of fishery products per unit area comparable to the richest marine areas of the world.



REDFISH OR CORVINA (CYNOSCION OTHONOPTERUS) ARE, LIKE THE ROBALO, BEING FISHED RATHER HEAV-ILY AT PRESENT AND THE CATCH OF THESE FISH PROBABLY CANNOT BE INCREASED TO ANY GREAT EXTENT.

EXPERIMENTAL PRODUCTION OF BLOWN MENHADEN OIL

By C.D. Bittenbender*

ABSTRACT

Tests were conducted on the production of blown menhaden oil to determine the effects of:

- 1. Pretreatment of the oil
- 2. Temperature of blowing
- 3. Blowing with dry air and with oxygen
 - 4. The use of certain additives

A refined and bleached menhaden oil produces a lighter-colored blown oil of a higher viscosity in a shorter time and temperature than an oil which is not so treated. Low temperatures of blowing produce a lighter-colored blown oil but the time of processing to an equal degree of viscosity is longer. Oxygen is more effective than dry air for blowing. Certain additives accelerate the reaction producing a high viscosity oil in a shorter time.

INTRODUCTION

In the commercial production of blown oil from menhaden (Brevoortia tyrannus) for certain industrial purposes, air is passed through cold-pressed oil until the viscosity of the oil is raised to the desired level. This increase in viscosity is attributed to oxidative polymerization, although little is definitely known of the exact mechanism involved.

The commercial blowers of menhaden oil generally want to produce oils light in color and with as high a viscosity as possible. Surveys have indicated that improvement of finished oil is desirable, but have brought out little information concerning present practices of commercial production. In the work reported herein the following factors have been considered: the effects of pretreatment, temperature, blowing with dry air and with oxygen, and the use of certain additives.

Brocklesby (1941) mentioned that fish oils were blown with air at 120°C. and warned against the use of higher temperatures since darkening of oil results. According to Bailey (1945), oils are blown at 200° to 250°F. (93° to 121°C.) for "several hours." Joachim (1934) indicated that blown fish oils were paler in color in the year 1934 than those previously produced, but he did not give specific color readings or data concerning processing conditions.

The National Paint, Varnish and Lacquer Association published a <u>Drying Oils Index</u> (1939) which currently lists a number of blown fish oils. Specifications are listed which include color and viscosity values on the Gardner scale. These specifications have been used as a guide to possible improvements of blown menhaden oil in this study.

*Chemist, formerly with the Fishery Technological Laboratory, Branch of Commercial Fisheries, U. S. Fish and Wildlife Service, College Park, Maryland.

1/Gardner Color Standards for Liquids, The H. A. Gardner Laboratory, Inc., Bethesda, Maryland.

Oxidative polymerization of oils is undoubtedly involved in the production of blown oils. In this reaction, peroxides are formed which facilitate the coupling of glyceride molecules to form polymers. Increase in temperature speeds the production of peroxides and the polymerization, but it also decomposes the peroxides. It is believed that when peroxides decompose, that is, before the polymerization takes place, they tend to darken the oil and at the same time the acidity of the oil is increased. It is also known that high acidity of oil slows up polymerization. Temperature of blowing is therefore a prime factor which affects the final composition of the blown oil.

Alkali refining of the oil is advantageous because high acidity tends to slow the rate of polymerization. Such refining also improves the original color of the oil and at the same time removes natural antioxidants and other substances that may inhibit polymerization. Bleaching with activated carbon further improves the original color and possibly removes substances capable of subsequently producing undesirable color in the blown oil.

Blowing with oxygen, as compared to blowing with dry air, may possibly be advantageous because there is a higher concentration of oxygen at the bubble surface during the process. Metallic driers have long been known to catalyze the oxidation of oils.

EXPERIMENTAL

A glass apparatus was designed in which heating of the oil was accomplished by surrounding a glass tube reaction vessel with vapors from a boiling solvent (Figure 1). The temperature of the reaction vessel was controlled by the boiling point of the particular solvent used. This apparatus eliminated the need of an oil bath and a thermoregulator. Air was bubbled through the oil by means of a small pump. The oxygen used was that commonly used for welding and was released directly from the cylinder. The rate of flow was regulated so that the bubbles followed one another closely. Actual volume of gas per minute depended largely upon the viscosity of the oil.

The oil used was a commercial sample of light-colored, cold-pressed menhaden oil with 2.4 percent of free fatty acids, an iodine number of 120, and color value of 11 on the Gardner scale. 1/ Some of the oil was alkali refined to a free fatty acid content of less than 0.1 percent and a color value of 9. Part of this oil was bleached with activated carbon to a color value of 6.5.

WATER

WATER

WATER

WATER

WATER

GAS

GAS

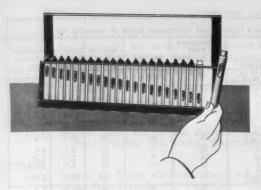
GONSTANT

BOILING

LIQUIO

FIGURE 1 - APPARATUS USED IN THE EXPERIMENTAL BLOWING OF MENHADEN OILS.

1/Gardner Color Standards for Liquids, The H. A. Gardner Laboratory, Inc., Bethesda, Maryland.



A BUBBLE VISCOSIMETER

The metallic driers used were "Uversol Driers" except for the cobalt and manganese soaps, which were prepared in this laboratory from fish oil acids. The benzoyl and lauroyl peroxides used were granular commercial products. Samples of the prepared oils were then blown at 58°, 61°, 82°, 95°, and 111° C.

Since a Gardner viscosimeter 2/was available only after the oils were blown, the samples could not be blown to a predetermined viscosity. The blowing was, therefore, stopped when the oil appeared sufficiently viscous, when undesirable color de-

veloped, or when an abnormally long blowing time had elapsed.

DISCUSSION

The data in Table 1 show that a number of oils were produced with a viscosity of Z6 (Gardner scale) or higher and with Gardner color values ranging from 10.5 to 15. A number of oils of lower viscosities were also produced with color values well within the range of the oils listed in the Drying Oils Index of 1944. The lightest color value listed in the Index for blown fish oils of viscosity Z6 or higher is 10-11. One other oil is listed of viscosity Z6 with a color of 9-10. The specifications do not mention whether any of these oils were produced from menhaden oil. Some of the heavier blown oils are described as being produced from sardine oil. It would appear from the data here presented that a blown menhaden oil can be prepared which will meet the specifications listed in the Drying Oils Index.

SUMMARY OF RESULTS

- 1. An alkali-refined and bleached, light-colored, cold-pressed menhaden oil will produce a lighter blown oil of higher viscosity in a shorter time at a given temperature than an oil which is not so treated.
- 2. Comparatively low temperatures maintained during the blowing process generally result in oils of lighter color than those produced at the higher temperatures.
- 3. The time of processing to an equal degree of viscosity is longer at the lower temperature.
 - 4. Oxygen is more effective than air as a blowing gas for menhaden oil.
- 5. The addition of cobalt driers to the oil decreases the blowing time at all temperatures. These driers can be used to produce a light-colored oil at low temperatures in a short time. The driers cause excessive darkening of the oil if comparatively high temperatures are used.

 2/The Gardner Bubble Viscometer, H. A. Gardner Laboratory, Inc., Bethesda, Maryland.

Sample No. of Menhaden		"Drier" Used		Temperature At Which Oil Was Blown	Gas Used	Duration Of Blowing	Gardner	Viscosity2 on Gardner
0111	Menhaden Oil	Type	Percent	Degrees C.	For Blowing	in Hours	Scale	Scale
1		Cobalt Oleate	[0.15 or 0.014% Co.	58	Oxygen	48	10.5	2 6+6
2	-	-	-	61	H	782	11	21.5
3	The state of the s	Leuroyl Peroxide	0,1	61	98	78 76 77	11.5	24
4	COLLO MICE.	Benzoyl Peroxide	0.1	61	27		11.5	Z 4.5
5	7 - 7 - 1 S - 1	[Leuroy] Peroxide	0.1	61	99	56	11.5	21.5
6		00-6	0.01	61		37	11.5	2 4.5
77	I TELLSUIS LINE PLAN	Leuroyl Peroxide	0.01 }	61	94	79	10	
/		1 00-6	0.0015	61		61		23
8	Refined and bleached	Benzoyl Peroxide	0,1	61		61	6.5	2 4+
10		Lauroyl Peroxide	0.1	61	98	61	7.0	\$ 2.5
11		[Lauroyl Peroxide	0,1 }	61		52	10,5	2 6+1
		1 Co-6	0.005		-	1		
12	Refined and bleached	11.1.4	-	82 82		48 48	11.5	2 2 2 3
14	Weilmed Wid presched	Lauroyl Peroxide	0.5	82		48	11.5	21
15	Park of Island State Books	(Lauroyl Peroxide	0.1 1	82		38	13	2 6+4
	-	Co-6	0.005				1	August 1
16	-	Pb-2437	0.05	82 82	Air	48	9.5	< □
17	-		0.05			48	10.5	< ∪
18	-	Co-6	0.005	82		48	13	Z 2
19	-	Ma-63/	0.01	82	99	48	11.5	< □
20			-	95 95		72 35	12.5	Z 4
21 22	Refined and bleached Cold-pressed to Iodine	Bulle STYD	-	35	-	35	11.5	2 5.5
- 22	No. 183.7	12.00		95		66	12.5	2.5
23	25% by weight of re-	-	-	95		593	12,0	2 645
	esterified oil of			-17 -17-	41 14 4		1	111
	Indine No. 228 added (final Indine No. 192)			1				
24	(11mm1 10dins 80, 192)			QK		77	13-	2 645
25	25% by weight of re-	1	-000	95 95	W	74	14.5	2 646
	esterified pentaerythri	tol	1			1 300		
	oil added (final Iodine							
26	80, 10/)	00-6	0,005	30		AA	16	Z 6+1
27 28		Cobalt Cleate	0.15	95	*	35	15, 16, 5	2 5.5
28	Refined and bleached	Manganese Oleate	0.05	95	*	35 48 63	12.5	Z 5.5 Z 6+5
29 30 31		Manganese Oleate	0.05	95 95 95 95 111	н	63	1 17	gelled
30	-	Bensoyl Peroxide	0.2	111	Oxygen	25h	13.5	2 5.5
32		Benzoyl Peroxide	0.2	111	11	35 33	12	140
33 34	Befined		-	111	Oxygen	42k 57k	12,5	Z 6+1
34	Refined and bleached		-	111	Air	5%	11.5	2 1
35	25% by weight of re- esterified oil added		-	111	Oxygen	44	13.5	2 4.5
	(final Iodine No. 192)		1					
36		Cobal t-Manganese	0,1	m		19	14	2 6+4
		fish oil acid						
37		State of Parcel de	011					
21		Lauroyl Peroxide	0.1	111	Air	42	K18	2 6+7
	The soul states	Co-6	0.005		-	444	6.00	2 0-7

1/The menhaden oil was a light-colored, cold-pressed oil with 2.4 percent free fatty acid, an Iodine No. of 120, and a color value of 11 on the Cardner scale.
2/Viscosities over 2 6 are indicated arbitrarily as Z 6 with +1, +2, etc., denoting viscosities over the scale.
2/Wiversol Driers" -- Co-6 = Cobalt as 6 percent liquid; Fb-24 = Lead as 24 percent liquid; Mb-6 = Manganese as 6 percent liquid.

6. The addition of benzoyl and lauroyl peroxides increases the rate of viscosity change only slightly.

7. An increase in the iodine value of the menhaden oil by the addition of esters resynthesized from highly unsaturated acids from fish oils increased the rate of viscosity change, but not sufficiently to compensate for the increased cost.

8. The addition of 0.1 percent of a mixture of cobalt and manganese soaps (1 to 1 ratio of cobalt to manganese) of menhaden oil acids to oil blown at 111° C. produced a high viscosity oil in only 19.5 hours.

LITERATURE CITED

BROCKLESBY. H. N.

1941. The chemistry and technology of marine animal oils. Fisheries Research Board of Canada (Ottawa, Canada) Bulletin, no. 59, p. 289.

BATLEY. A. E.

1945. Industrial oil and fat products. Interscience Publishers, New York, N. Y., pp. 389 and 692.

JOACHIM, B.

1934. Applied paint and varnish chemistry for the chemist and layman. American Paint Journal (St. Louis, Missouri), vol. 1, p. 161.

ANONYMOUS

1939. Drying oil index. National Paint and Lacquer Association, Inc. (Washington, D. C.), Circular 730 (March).



REFRIGERATED LOCKER STORAGE OF FISH AND SHELLFISH

Shellfish present a problem quite different from fin fish in that more preparation is necessary before they can be frozen. Since some shellfish are available for only short periods of the year, it may be especially advantageous to freeze them for later home use.

Oysters, scallops, and clams can be successfully frozen. Since considerable practice is required in order to open the shells satisfactorily, an inexperienced person will do better to obtain the shucked products, which are readily available in season.

The commercial pack of frozen shrimp exceeds those of all other frozen shellfish packs combined. For locker storage, raw shrimp are most successfully frozen after breaking off the heads and appendages but without removing the shell from the tail or edible portion. Cooked crab meat and lobster meat should be packed in jars with $2\frac{1}{2}$ percent brine.

In most cases it is best to use frozen shellfish within a period of three or four months; however, a storage life of six months may be attained where storage accommodations are especially good, and the temperature is as low as -10° F.

--Fishery Leaflet 128



March 1950

NUTRITION: Mixed diets and special diet components used by Washington State Department of Fisheries in hatchery feeding were analyzed. Approximately 20 diet components being used at the Leavenworth Hatchery were likewise analyzed.

* * *

PRESERVATION: A new series of salmon eggs was preserved in open cans as contrasted to previous tests in which the samples were stored in hermetically-sealed tin cans. Since it was observed that oxidation was taking place, several series of tests were started using different anti-oxidants in an effort to reduce such oxidation. Some preliminary tests have indicated that n-butyl phydroxy benzoate gives excellent preservation of the fish eggs. However, this chemical is so expensive that it appears uneconomic to use it alone. Some tests were started during the month to see whether small concentrations of this preservative could be used in combination with other less effective chemicals to produce a mixture which would be economically feasible to use.

* * *

REFRIGERATION: A series of pH measurements were made on strictly fresh oysters at the time of preparation for market at oyster shucking houses in Crisfield, Maryland, and Chincoteague, Virginia. Oysters from the Norfolk area (Eastern Bay) as well as from Tangier Sound were available for pH tests at Crisfield.

The average pH values of these samples, taken at the packing table, were as follows:

Sel	Standards		
Chincoteague	Norfolk	Tangier	Norfolk
6.50 6.52 6.53	6.80 6.84 6.83	6.70 6.68 6.70	6.80 6.79 6.79
	6.50 6.52 6.53 6.56	Selects Chincoteague Norfolk 6.50 6.80 6.52 6.84 6.53 6.83 6.56 6.88	

The average pH values for the Chincoteague oysters were slightly less than those for the oysters which have been obtained through the season at a nearby shucking house; the Norfolk and Tangier oysters are somewhat higher in pH.

* * +

Shucked oysters were brought back from Crisfield for a new beginning on the studies on the darkening which occurs during frozen storage. As reported last month, the previous lot had a pink discoloration upon thawing and the test was

se

terminated. "Pink yeast" was suspected, but it seemed hardly likely that this organism would grow to such proportions under the conditions of storage and thawing followed in these tests. However, examinations definitely showed that the trouble was due to "pink yeast." In the meantime, nearly 100 more packages of oysters given various dips and treatments with ascorbic acid, citric acid, and plain water were prepared, frozen, and placed in zero storage.

* * *

After one year in zero storage, the fish that were wrapped in vegetable parchment, dipped in water, wrapped in moisture-vaporproof material and frozen were still well coated with ice and were not desiccated or discolored. The fish prepared by the usual methods were entirely unacceptable.

* * *

Fillet samples from the freezing-fish-at-sea project were examined after the fifth month in storage. Palatability tests revealed a preference for fillets from fish frozen in the round at sea over fillets from fish gutted and iced at sea. There is an indication, however, that the white, bleached appearance of a fillet from fish gutted and iced at sea, with which the consumer has become accustomed, is preferred to the true pinkish hue of the fresh fish evident in the fillets from fish frozen in the round. The free-drip and press-drip values have not changed materially from those values attained after the fourth month of storage. Soluble protein determinations demonstrate higher values in fillets from frozen-round fish than in fillets from iced-gutted fish, thus indicating that the freezing effect is less in the controlled double freezing of a fish right out of water than in the single freezing of a fish iced for a considerable period.

* * *

ANALYSIS: Much more consistent results are being obtained on the vitamin B_{12} analyses. During the month, 10 samples of products being used in the hatchery program were analyzed for vitamin B_{12} . Further work was done on the biotin and folic acid microbiological assays, but to date no satisfactory procedure has been found.

* * *

BYPRODUCTS: Calculations of vitamin A and oil content from the analyses of the 227 livers obtained in Bering Sea were completed. The data will be compiled and reported in the near future.

* * *

PROCESSING: Additional examinations were made of the experimental packs of canned sockeye salmon prepared from frozen fish. Similar observations to those summarized in the January and February reports have been noted in all examinations. The significant loss in quality of the product canned from salmon frozen and stored only six weeks in a commercial cold storage suggests that the process should be used only under carefully controlled conditions if the processor wants to prepare a marketable pack. Utilizing only fresh prime fish, freezing promptly, glazing well, storing at a subzero temperature for short periods are the precautions indicated which will minimize the loss in quality when the salmon is canned.

The packs prepared after both the 6- and 16-week-frozen-storage periods showed a marked decrease in the free cil, which may be the most important quality loss from the marketing viewpoint. The loss of color, the increased amount of curd and discoloration in the flesh, and the off-flavor present in the fatty tissue were the quality factors in the experimental packs of greater importance from a consumer's viewpoint. The increased toughening of the fish did not seem to be of great importance in itself, although it is probably related to the decreased liquid and oil yield. These alterations in the canned product were present to the greatest extent in the pack prepared from fish frozen and stored unglazed for the longest period (16 weeks) in a commercial cold storage.

TECHNICAL NOTE NO.3 - FISH MEAL IN ANIMAL AND POULTRY FEEDING

At the 117th meeting of the American Chemical Society in Philadelphia on April 10-14, 1950, one investigator indicated that vegetable protein can be substituted for animal protein in the poultry diet. He reported that good results for growing and starting chicks were obtained using all vegetable rations, supplemented with certain minerals and Animal-Protein-Factor concentrates; and that fish meal or other animal proteins were not necessary. This new ration was less costly than those normally used.

Other studies on animal and poultry nutrition indicated that aureomycin, streptomycin, and possibly other antibiotics possess a stimulating effect over and above that shown by vitamin B_{12} . Nothing has been presented, however, that indicates fish meal and fish solubles contain anything less than has been reported before. They are still very good sources of animal protein, necessary minerals, and some vitamins. Their use is still recommended in practical rations for poultry and swine. The substitutions which have been recently recommended have been mostly in the ration of growing stock, and are based on economic considerations.

The symposium on vitamin B_{12} indicated that apparently there still remains some difference of opinion regarding the relationship between B_{12} and the Animal Protein Factor. Some investigators claim that vitamin B_{12} and the APF are one and the same thing; others pointed out that APF is multiple in value; and still others maintained that though APF is multiple in value, vitamin B_{12} is the most important member of the complex.





Additions to the Fleet of U. S. Fishing Vessels

During February 1950, 49 vessels of 5 net tons and over received their first documents as fishing craft - 2 less than in February 1949, reports the Bureau of Customs, Treasury Department. California led with 11 vessels, followed by Alaska, Florida, and Virginia with 5 vessels each.

Section	February		Two mos. end	Total	
	1950	1949	1950	1949	1949
m Adhigografia (8.10) - Paliferral Jerry a	Number	Number	Number	Number	Numbe
lew England	1		5	2	35
Middle Atlantic	-	6	2	7	44
he sapeake Bay	8	6	10	12	87
South Atlantic and Gulf	18	19	34	53	369
Pacific Coast	15	12	24	19	327
Great Lakes	2	3	2	8	38
Maska	5	5	7	6	96
Hawaii	-	-	-	1	5
Jnknown	-		-		1
Total	49	51	84	108	1,002



Astoria (Oregon) Curtails Fishing Activities

A NUMBER OF OTTER TRAWLERS WITHDRAW FROM BOTTOMFISH FISHERY: Out of a fleet of 48 vessels engaged in otter trawling at Astoria, 15 are reported to have withdrawn from the bottomfish fishery as a result of a decline in the demand for rockfish fillets, according to a March 15 report from the Service's Fishery Marketing Specialist stationed at Seattle. During the years 1943-1945, between 200 and 300 carloads of fillets were shipped from Astoria each year, compared with about 30 carloads per year in recent years, according to the Astoria railway agent.

SHARK FISHERY AT A STANDSTILL: All of the fleet of 15 vessels previously fishing for shark out of Astoria are reported to have tied up following the market collapse for soupfin shark livers. Prices for these livers have declined from 33 cents per million units (about \$11.50 per pound) to 11 cents per million units (about \$3.50 per pound).

TUNA-FREEZER SHIPS RESUME ACTIVITIES: The two large West Coast tuna-freezer ships, the <u>Tinian</u> and <u>Saipan</u>, which were tied up indefinitely last year when the tuna market outlook was not too bright, are scheduled to resume activities in Central American waters this year. The <u>Tinian</u> sailed from Astoria on February 14, and will be served by six fishing vessels (one from Astoria and the remainder from San Pedro). The <u>Saipan</u> was expected to leave Astoria in March.

ECA Procurement Authorizations for Fishery Products April 1950



No procurement and reimbursement authorizations for fishery products (edible and inedible) were announced by the Economic Cooperation Administration during April 1950. In addition, no cancellations or decreases affecting previous authorizations for fishery products were reported.

Total ECA procurement authorizations for fishery products from April 1, 1948, through April 30, 1950, amounted to \$29,714,000 (\$17,719,000 for edible fishery products, \$10,455,000 for fish and whale oils, and \$1,540,000 for fish meal).

In summarizing progress during the first half of the Marshall Plan, which ends June 30, 1952, ECA on April 1 declared that Europe must intensify its export drive to hard currency areas, reduce European costs and prices, and develop

non-dollar sources of supply in order to close the dollar gap. Further, ECA stated that the United States can assist not only by continuing Marshall Plan aid at adequate levels for the next two years, but also by maintaining high levels of economic activity and import demand in the United States; by following increasingly liberal import policies and commercial policies generally so that trade barriers do not prevent European countries from increasing dollar earnings in the United States; and by developing an effective program for stimulating the outflow of U. S. capital to other parts of the world. The ECA Administrator asserted that "this means that the United States must sell less to and buy more from Europe."

The establishment of an International Trade Promotion Division to aid Marshall Plan countries to earn more dollars through increasing their exports to the United States was announced by ECA on April 8. The Division will concern itself with the elimination of trade barriers and with the development of plans to bring together the European seller and the American buyer.

Later in April ECA appointed four trade development specialists. Specialists were assigned to Paris, France; Rome, Italy; London, England; and Frankfurt, Germany.

Under ECA's technical assistance program, the agency on April 8 reported that a United States fisheries expert will make a two-month study of Iceland's fisheries industry to recommend more efficient methods of salting, freezing, and otherwise processing fish, and better utilization of byproducts. ECA dollar costs for the project are estimated at \$5,600.

Federal Purchases of Fishery Products

DEPARTMENT OF THE ARMY, FEBRUARY 1950: The Army Quartermaster Corps during February 1950 purchased 573,730 pounds (valued at \$267,139) of fresh and frozen fishery products for the U.S. Army, Navy, Marine Corps, and Air Force for military feeding. February's purchases were 51 percent lower in quantity and 47 percent lower in value as compared with the previous month. Compared with the corresponding month a year earlier, this February's purchases were also lower in quantity by 60 percent and in value by 44 percent.

	Purchases			Products by De Months, 1949		of the Arm	У
	QUAI	NTIT			VAL	JE	
Feb	ebruary January-February		February		January-February		
1950	1949	1950	1949	1950	1949	1950	1949
1bs.	1bs. 1,434,866	1,743,503	1bs. 2,366,063	267,139	478,040	767,111	822,773

Total purchases for the first two months this year were 26 percent less in quantity and 7 percent less in value, compared with the corresponding period in 1949.



Fishery Biology Notes

MEETING OF THE CHESAPEAKE BAY SHAD RESEARCH COMMITTEE: At a meeting of the Chesapeake Bay Shad Research Committee at Solomons Island, Maryland, on March 27, plans were made for cooperation between the Fish and Wildlife Service and State agencies for shad research. Members of the Service's Section of Anadromous Fisheries and the Middle and South Atlantic Fishery Investigations attended the meeting.

On the same day a meeting also was held at which croaker research, particularly by State agencies, was discussed.

SERVICE DOES NOT ADVISE INTRODUCTION OF JAPANESE OYSTER TO THE ATLANTIC COAST: The Fish and Wildlife Service advises against introducing the Japanese oyster (Ostrea gigas) to the Atlantic Coast, as has been suggested from time to time. There would be a serious danger of its replacing the superior Eastern oyster (Ostrea virginica), and it would probably introduce to the Atlantic Coast its own peculiar set of oyster parasites and predators, as was the case on our Pacific Coast when it was introduced there several years ago.

This policy of the Service dates back to 1932 (then the Bureau of Fisheries) and is being reiterated at this time because several inquiries have been received regarding the introduction of Japanese cysters on the East Coast. It is the Service's opinion that such a program would affect the East Coast cyster industry unfavorably.

At the present time a few of the Atlantic Coast States prohibit planting of the Japanese oyster in State waters.

GULF OYSTER INVESTIGATIONS: Observations on spat growth at Pensacola now cover nearly a year and show some interesting features, according to a report

from the Service's Gulf Oyster Investigations. In one sample of 75 spat collected on artificial cultch during a six-hour period in May 1949, there has been a survival of 50 cysters or 66 percent. These cysters were kept free of fouling organisms in suspended trays. They now have a very desirable shape, rounded and deeply cupped. It is of significance that although of identical age, they range from $1\frac{1}{4}$ " to 2-5/8" in size and on the average have twice the weight of similar aged but much longer cysters growing on the natural reef.

It has been suggested, in the past, from both experimental and field observations that oyster mortalities following exposure to fresh water are caused primarily from the shock of the returning salt water. Observations, both last year and this year, do not confirm this theory. Samples of oysters transplanted from essentially fresh water in Mississippi Sound to Pennsacola, when salinities were approximately 20-25 parts per thousand, have shown negligible or no mortality in the 30-day periods following their transplantation. Many of these oysters were less than a year old and, from their environmental history, this survival cannot be ascribed to the possibility that they had been conditioned to radical changes in salinity levels.

Samples of oysters most recently examined in the west end of Mississippi Sound showed that while the meats looked reasonably normal and the adductor muscles were functioning, the mantles had lost most of their ability to contract. It is believed that these oysters are moribund and that death will occur in many regardless of whether or not salinity levels increase.

OYSTER DRILL STUDIES: Studies were continued during the first quarter this year at the Pensacola Laboratory on the ecology of the oyster drill, Thais, with particular emphasis on egg deposition, larval development and growth rates, states the Service's Gulf Oyster Investigations. Egg capsules were found on oyster shells on the natural reefs in the middle of last February simultaneously with the appearance of egg capsules in the trays of drills held experimentally in the laboratory. Temperature levels in early February had been over 21°C.

In 1949, egg deposition was not observed in the field until mid-April when water temperatures were approximately 21° C.; Thais eggs deposited on laboratory trays during June and July required 17 days for development of larvae to that point at which they escape from the egg capsule.

This year, immediately following deposition of eggs, there was a sharp decrease in water temperatures to a range between 13.5° C. and 18° C. and at these temperatures, larval development continued normally but required 39 days before escape of larvae from capsules.

Studies are in progress to determine length of the free-swimming period. This is important in determining factors governing distribution of the snail.

Over 600 snails have been numbered individually and transferred to one of the large cement tanks where it is planned to maintain them for the next year under as nearly normal conditions as possible and in the presence of an excess of food. Measurements on population are being made at 3-month intervals. During the past quarter of this year, drills have been growing rapidly and have experienced less than one percent mortality.

Small groups of snails have been sexed and are being maintained in separate tanks as a part of the studies on reproduction in the animal. In some of the ani-

mals in which the shells were partially broken open to examine their anatomy, there was a complete repair of the broken shell, up to four square centimeters, within 35 days. There is some hope that a biological control of this drill may be possible because of the natural infection with the trematode parasite Parorchis. Infection with this parasite is localized in the gonad with resulting sterility of the snail.

FOOD REQUIREMENTS OF OYSTER LARVAE: Experiments on quantitative and qualitative food requirements of the Eastern oyster larvae (O. virginica) were continued by the Service's Milford Shellfishery Laboratory, Milford, Connecticut.

In order to create optimum conditions for early oyster larvae cultures, experiments indicated that Chlorella (a foodorganism) should be given in definite numbers. These numbers were approximately 50,000 Chlorella cells per cc. of water in which oyster larvae were kept. When food organisms were present in considerably smaller numbers than 50,000 per cc., larvae grew slowly and showed a high mortality rate, due apparently to slow starvation.

RAISING OF LARVAE OF THE EUROPEAN OYSTER IN THE LABORATORY: Groups of the European oyster (0. edulis) were kept in the Milford Laboratory during the entire winter, and groups of these oysters were conditioned for winter spawning. Some of them discharged larvae. The larvae were cultured, and in several cultures setting occurred.

These larvae were raised on almost pure cultures of Chlorella and not on colorless flagellates, which European workers consider as almost the only food organisms on which larvae of the European oysters feed and grow. The culture of Chlorella fed to larvae of the European oysters was virtually mono-specific. An analysis made of Chlorella culture, when the larvae were setting, found that the Chlorella culture contained practically no colorless flagellates.

HARD CLAMS INDUCED TO SPAWN IN THE LABORATORY: Throughout the winter large numbers of hard clams (Venus mercenaria) were conditioned for spawning and, when needed, were induced to spawn in the Milford Laboratory. The eggs were used in experiments devised to learn food requirements of larvae. In these experiments, where duplicate cultures of larvae were used, and which were already repeated twice this winter, five concentrations of Chlorella were used as food. Control cultures were kept in sea water to which no Chlorella was added. Concentrations used were 50,000, 100,000, 250,000, 500,000 and 1,000,000 Chlorella cells per cc. of the water of the culture jars.

Best results were obtained when approximately 250,000 Chlorella cells per cc. of water were used. Nevertheless, clams also set in all other cultures except that containing 1,000,000 cells per cc. where larvae died.

These experiments were of a preliminary nature designed mostly to develop experimental technique. They will be continued on a much broader scale, and micro-organisms other than Chlorella will be used as larval food. These micro-organisms will be fed to clam larvae in relatively pure cultures and in various mixtures of two or more cultures. Some preliminary experiments of this nature already have shown that feeding clam larvae with a mixture of Chlorella and sulfur bacteria results in a more rapid growth, and higher survival rate than if larvae are fed with Chlorella culture alone.



Fishery For Trash Fish in New England

Trash fish are being landed in increasing quantities in New England and more meal plants are being constructed in that area. Capacity for reduction of trash fish this year is estimated at over 100 million pounds in that area, according to the Service's North Atlantic Fishery Investigations.

Trash fish landings are causing concern among conservationists who fear misuse of the young edible species. The Fish and Wildlife Service frequently samples catches. The most striking characteristic is the variety of species predominating in the catch. The principal ones this winter were sculpin, skates, eel pout, goosefish, and daylight flounder, while red hake and whiting predominated last summer and fall. Moderate quantities of yellowtail flounder were included at Provincetown and occasionally at New Bedford.



Gulf Exploratory Fishery Program

PLANS OUTLINED FOR THE VESSEL "OREGON:" A definite exploratory fishing program in the Gulf of Mexico for the Service's vessel Oregon has been established for the period April through June 1950. The program will concentrate on tuna, red snapper, and shark, but also will include work on menhaden and some over—all general exploratory fishing.

Tuna: Generally, the objective for tuna exploratory fishing will be to locate tuna schools by sight, locate thermoclines (areas of abrupt water temperature change) and carry on exploratory fishing in the immediate area; troll for tuna over a large general area, using all types of lures (on the surface and at various depths); set gill nets in promising tuna areas; set long-line gear in suitable areas; and locate bait concentrations by sight.

The vessel is to carry out a bait program which will include a search for bait by using motorboats for inshore work, by operating offshore from the Oregon, and setting up a shore operation to assist in the location of bait. In addition, it is planned to test various species of fish in the vessel's bait tank for viability.

If bait is located and caught, the Oregon's crew expects to test the pole-and-line method for catching tuna.

Red Snapper: The red snapper objectives are to improve the method of locating commercial concentrations of snapper by deep trolling and the use of depth recorders in order to decrease the total fishing time now required, and devise new gear or modify conventional snapper gear to increase the rate of catch. During all cruises, the vessel is to maintain a watch of the vessel's depth recorder for possible snapper grounds. Grounds located by the recorder will be tested and, if suitable, charted.

Shark: Exploratory fishing for sharks will be conducted with set long-line gear using both a bottom and surface type, with a variety of baits.

Menhaden: With reference to menhaden the vessel's objective is to report the location and estimated size of all schools of menhaden sighted.

d,

he

General Research: In addition to the programs for the specific fisheries mentioned, the Oregon will check depth-recorder data, take bottom samples, and make try-trawl catches for indication of bottom conditions for use on future contemplated shrimp trawling operations.

SHAKEDOWN CRUISE COMPLETED BY THE "OREGON:" A shakedown cruise was made by the Service's Gulf exploratory fishing vessel Oregon between April 17-21. It operated between Mobile Bay and the mouth of the Mississippi River. The purpose of the cruise was to acquaint the crew with the vessel and its equipment before the regular exploratory cruises, and also to determine whether the vessel could be maneuvered for satisfactory results with light trawling rigs and for conventional snapper fishing.

In spite of rough weather encountered on the first, second, and fourth days of the trip, a 40-foot shrimp trawl was used successfully and bait was obtained for snapper fishing, Snapper fishing was difficult because of the relatively high freeboard and the considerable rolling action of the vessel at anchor. A total of 360 pounds of red snapper was taken from two spots in 32 and 48 fathoms. In addition, 54 pounds of black grouper, 55 pounds of scamp, and 270 pounds of shark were taken incidental to snapper fishing.

No indications of the presence of tuna or mackerel-like fish were observed. However, schools of menhaden were sighted, but weather conditions did not permit an estimate of the size of the schools. Trolling with artificial bait from the Oregon and from the launch tender brought no results.

After minor changes in deck gear and the addition of certain fishing gear, the Oregon will leave May 4 for an extended exploratory cruise.



National Fisheries Trends and Outlook, April-June 1950

A high level of economic activity in April, May, and June this year will be favorable to the marketing of fishery products, but diligent merchandising on the part of the fishing industry will be necessary to offset certain negative factors in the current situation.

The second quarter of the year ordinarily sees the production of about onefifth of the annual total of the United States catch of fish and shellfish. About one-half of the fish destined for sale in fresh and frozen form is produced in this quarter and the catch for these purposes usually reaches its annual peak in June. The peak of production of fish and shellfish for canning and for use in the manufacture of byproducts comes later in the year.

Consumption and Distribution: Supplies of fishery products in the United States during the early months of 1950 were sufficient to maintain the civilian per capita consumption of these commodities at about the same rate as in the same period last year, but apparent disappearance was slightly lower, according to a report issued early in May by the Bureau of Agricultural Economics, Department of Agriculture, and prepared in cooperation with the Fish and Wildlife Service.

Less fresh fish was marketed but the net movement of frozen fishery products into distribution channels during the first quarter was approximately the same as

in the same period of 1949. Trade reports indicate that the movement of the major species of canned fish into consumer channels was more rapid than in January-March last year.

<u>Fresh and Frozen Fishery Products:</u> Weather conditions on the eastern seaboard of the United States during the first quarter of 1950 were not as favorable for commercial fishing operations as they were a year earlier, and preliminary reports indicate that landings were lower.

More fishery products were frozen and less sold to the fresh market. The quantity of fish frozen commercially for eventual food use in January-March totaled almost 27 million pounds, 18 percent larger than in the same period of 1949. The reduction in cold-storage holdings between January 1 and April 1, 1950, amounted to 55 million pounds, somewhat less than in the same period of 1949. Stocks are now near the low point of the year but will be built up again as the commercial catch and freezing of fishery products for food use increase seasonally in the next few months.

Even though the catch may be high in the second quarter, a probable carryover lower than that of 1949 in certain frozen fishery products (halibut and fillets of haddock, flounder, cod, and pollock) will tend to maintain prices of some classes of fishery commodities.

Canned Fishery Products: Domestic supplies of the major species of canned fish (i.e., salmon, tuna, Maine sardines, and pilchards) thus far in 1950 appear to be about equal to those in the same period last year. Present supplies are expected to be sufficient to meet consumer demand at prevailing prices until the new pack starts moving into distribution channels in volume after the middle of the year.

Retail prices of the popular types of canned fishery products in the next few months probably will continue lower than a year earlier.

<u>Cured Fishery Products</u>: Cured fishery products supplies available during the first quarter of 1950 have been well above those available during the same period in 1949. This has been due primarily to larger holdings of salted herring.

Foreign Trade: Imports of frozen fillets of groundfish (cod, haddock, hake, pollock, and cusk) and rosefish (ocean perch) during the first four months of 1950 were more than 4 million pounds larger than those in the same months of 1949.

Prospects for 1950 are that imports of fishery products will total more than last year.

Exports may show some increase over 1949, but will remain low relative to those in the years 1946 and 1947 when large quantities of canned fishery products were shipped to Europe under relief-feeding programs.



nc

North Atlantic Fishery Investigations

"ALBATROSS III" CONTINUES RESEARCH ON GEORGES AND WESTERN NOVA SCOTIA BANKS: Gethering data on the abundance of groundfish on Georges Bank and the Western Nova Scotia Banks was the purpose of two recent cruises by the Investigations' research vessel Albatross III. Cruise No. 33 on Georges Bank was made from March 15 to March 30 this year, and Cruise No. 34 on the Western Nova Scotia Banks was made from April 24 to May 5. The information gathered on these cruises will be used in determining the size and distribution of groundfish populations occurring on these banks during the spring months.

During fishing operations, made with an 1-1/2 Iceland trawl equipped with rollers and aluminum floats of special design, 133 half-hour tows were made—81 on Georges Bank and 52 on the Nova Scotian Banks.

In addition, bathythermograph lowerings were made at each station to provide additional information on temperature versus fish distribution. Several vertical and horizontal plankton hauls were also made to ascertain the relative abundance of plankton and fish eggs and fry found on the banks.

Echo sounders were used in the census of groundfish populations. Numerous schools of sea herring were detected on Georges Bank and rosefish were recorded and subsequently caught southwest of Lurcher Lightship in 110-120 fathoms.

The distribution of haddock and other commercial species was noted and their occurrence reported to the fleet through daily broadcasts. This practice of reporting the daily activities of the Service's work at sea will be continued on the regular ship-to-ship channel.

Commercial species were found to be very scarce on Georges Bank. Small concentrations of large haddock were found west by south of the Cultivator and in the southern end of the Five-Fathom Rip. Small haddock, one and two-year olds, were abundant on the Southeast Part and on the Northern Edge. Small haddock were also abundant on Browns Bank. A small concentration of large haddock was found south-southwest of La Have in 65 to 67 fathoms.

Two hundred sea scallops were tagged on the Southeast Part of Georges Bank to determine if they migrate—fishermen say they do. A reward of \$1.00 will be paid for each tag returned.



Northwest Pacific Exploratory Fishery Program

"JOHN N. COBB" ON SHAKEDOWN AND SHRIMP SURVEY CRUISE IN ALASKAN WATERS: The Service's exploratory fishing vessel, John N. Cobb, left March 20 on a combination shakedown and shrimp survey cruise in the inland waters of southeastern Alaska. Actual fishing operations were begun on March 24 in Clarence Strait. The vessel returned to Seattle on April 14 to get ready for an albacore exploratory cruise.

Exploratory work was carried out in the waters of Behm Canal, Clarence Strait, Tolstoi and Kasaan Bays, and Cholmondeley Sound (all areas which are within operational distance of fishing boats working out of Ketchikan).

Three types of gear were employed in fishing operations on this cruise. A small trawl was used for searching out and locating shrimp. Areas which showed favorable catches were retrawled with a 30-foot otter trawl. Traps were used in areas where trawls could not be used. Limited amounts of shrimp were found scattered throughout the areas investigated.

Bathythermograph readings, water samples (for salinity determination), temperatures, bottom samples, and other oceanographic data were collected in all areas investigated. A log was maintained of all marine life encountered on the trip and three new ranges were noted for three species.



Pacific Halibut Fishery Regulations for 1950

The 1950 Pacific Halibut Fishery Regulations are substantially the same as those for 1949 except for the addition of two paragraphs which are designed to direct attention to the illegality of fishing without a valid license and possessing halibut without a valid permit when such is required. The 1950 regulations became effective on April 20, 1950, after they were signed by the President of the United States and by the Governor General of Canada.

The halibut season opened on May 1 and the quota again is 54 million pounds. The catch limits are as follows: Area 2 (between Willapa Harbor and Cape Spencer, Alaska)—25,500,000 pounds; Area 3 (between Cape Spencer and a line running true west from Cape Sarichef on Unimak Island)—28,000,000 pounds; Area 4 (the Bering Sea north of the Cape Sarichef line)—500,000 pounds. As in the past, no catch limits have been placed upon Area 1A (south of Cape Blanco, Oregon) and Area 1B (between Cape Blanco and Willapa Harbor, Washington).

Areas 2, 3, and 4 will be closed to halibut fishing on dates announced by the Commission during the season. These dates are those by which the Commission estimates that the respective catch limits will be caught. Area 1A closes with Area 2 or Area 3, whichever is later. Area 1B closes with Area 2. Area 4 closes with Area 3 unless it was closed earlier by reason of the attainment of its own catch limit.

In the event that the catch limits are not already attained and the areas closed before December 1, the season in all areas automatically closes on that date.

Last year Areas 1B and 2 were closed on June 3, and Areas 1A, 3, and 4 on July 12. This latter closing date terminated all halibut fishing on the Pacific Coast of Canada and the United States, including Alaska, except for incidental halibut catches. The 1949 halibut season was 73 days long, compared with 72 days in 1948 and 109 days in 1947.

It is estimated that the season this year will probably be not much longer than last year. Market conditions for halibut this year are actually very strong with old stocks cleaned out and only enough left in the freezers to take care of local immediate needs. Prices to the fishermen are expected to be well up to last year's. However, prices fishermen will receive for the livers probably will be lower than last year since the outlook in liver oils is not very encouraging.

In addition to some minor changes, the following major changes appeared in the 1950 Pacific Halibut Fishery Regulations:

Under Section 4 (Issuance of Licenses and Conditions Limiting Their Validity), paragraph (k) is added:

No person on any vessel which is required to have a halibut license under paragraph (a) of this section shall fish for halibut or have halibut in his possession, unless said vessel has a valid license issued and in force in conformity with the provisions of this section.

Under Section 6 (Issuance of Permits and Conditions Limiting Their Validity), paragraph (h) is added:

We person shall retain, land or sell any halibut caught incidentally to fishing for other species of fish in any area closed to halibut fishing under Section 2 of these regulations, or shall have halibut of any origin in his possession during such fishing, un-

less such person is a member of the crew of and is upon a vessel with a helibut license and with a valid permit issued and in force in conformity with the provisions of Sections 5 and 6 of these regulations.

In paragraph (a) of Section 7, the time allowed for vessels to make statistical return after unloading is increased from 48 to 96 hours on account of the closure of some government offices during week ends.

Under Section 9 (Closed Small Halibut Grounds), paragraph (a) is reworded in more specific terms as follows:

The following areas have been found to be populated by small, immature halibut and are closed to halibut fishing, and no person shall fish for halibut in either of such areas, or shall have halibut in his possession while fishing for other species therein, or shall have halibut of any origin in his possession therein excepting in the course of a continuous transit across such area,



Pacific Oceanic Fishery Investigations

"HUCH M. SMITH" COMPLETES SECOND CRUISE: Itinerary of Cruise: The Hugh M. Smith departed from Pearl Harbor on January 16 and proceeded to French Frigate Shoals where a week was spent looking for bait. From French Frigate Shoals the vessel proceeded southward occupying hydrographic stations along a section running from the Shoals to 5° S. latitude, 172° W. longitude. This section was completed on February 7 and the ship proceeded to Hull Island and Canton Island, the contiguous waters of which were prospected for tuna. The vessel departed Canton Island February 13 and arrived at the initial point of the return hydrographic section (5° S. 158° W.) on February 18. This section, running from the point indicated to Oahu, was completed on February 28 and the ship returned to port on the morning of March 2.

Observations and Collection of Data: The primary mission of this cruise was to take two oceanographical sections across the equatorial counter-equatorial current system. This was successfully completed. From the oceanographical data gathered on this cruise will be computed the positions and speeds of the major ocean currents, and the areas of and amount of upwelling. Completion of the computations will require several months. A similar series of observations is to be taken during next June and July to compare summer and winter conditions.

At each station of the first section a tow was taken with a plankton net or a young-fish trawl, the tow being made obliquely from a depth of 100 fathoms to the surface. At stations of the second section, half hour surface tows were taken with plankton nets. These tows were made for two purposes: (1) To search for tuna eggs and larvae; and (2) to obtain estimates of the abundance of fish food (zooplankton) to correlate with the results of the physical and chemical oceanography.



THE HUGH M. SMITH, ONE OF THE THREE VESSELS OF THE PACIFIC OCEANIC FISHERY INVESTIGATIONS.

Night-light fishing was conducted when hove-to on stations. By this means were captured specimens of fishes and cephalopods (squids) valuable to our reference collection for identifying tuna stomach contents, as well as juveniles of a number of pelagic fishes. Cephalopods were found to be particularly abundant at night at a station near 1580 W. 20 N. where the deep scattering layer appeared especially pronounced during the day at 250 fathoms and moved up to the surface during the early evening. Several specimens of squid were

collected, including one of about 30 pounds. It may well be that these squids are an important component of the deep scattering layer.

When running during daylight hours a continuous watch was kept for schools of tuna and flocks of sea birds which are often "working" over tuna schools. The time and position of observation of such phenomena were logged. Such data gathered over several cruises should yield a direct estimate of abundance of tunas at different latitudes and seasons. It is of immediate interest that several schools of skipjack (aku) were observed very far from any land; for example, a school a half-mile long was observed (and specimens captured from it by trolling lures) near 10° N. 172° W., several hundreds of miles from the nearest land.

Two or three surface lures were trolled continuously during daylight hours and catches on these were logged.

Some twenty-five specimens of tunas were captured by trolling and by live-bait fishing near Canton Island. Detailed morphometric measurements were taken from such specimens for study of the racial affinities of the stocks they represent. The gonads of females were removed for study of degree of sexual maturity. Stomachs were removed for food-habit study, and vertebral sections were preserved for study of means of determining age and growth.

The vessel spent the period from January 19 to January 25 at French Frigate Shoals in an attempt to obtain a supply of "Iao" (Hepsetia insularum) to employ as live bait for tuna fishing near Canton Island. The weather just prior to this period was characterized by strong southerly and easterly winds and heavy seas from southerly directions, and such weather continued until January 23 when the wind dropped off to light breezes. Although all the sandy islands of French Frigate Shoals were scouted several times for bait, none was seen except a small

school of about 20 or 30 buckets at Tern Island on January 19 and an even smaller aggregation of 5 buckets at East Island on January 25. The latter were captured and placed in the ship's bait tanks.

The almost total absence of bait at French Frigate Shoals during this period of southerly winds contrasts strongly with the rather abundant bait found by the Oregon in January 1948 following a period of strong NE. trades. The variations in surf or current conditions associated with variations in wind direction may be responsible for the marked differences in availability of the bait fish. This possibility needs to be thoroughly investigated if the full potentiality of French Frigate Shoals as a reliable baiting ground is to be developed.

The 5 buckets of "Iao" were carried from French Frigate Shoals to 5° S. latitude with no mortality, confirming previous observations of the ability of this species to be easily transported to the equatorial region.

February 8 was spent in a very preliminary reconnaissance of Hull Island. It was not possible, due to unfavorable seas, to negotiate with the power boat the passage into the large, deep lagoon. From the large number of sea birds "working" over parts of the lagoon it would appear likely that bait species may be available in quantity; however, this should be further investigated in the future.

In circling around Hull Island close inshore, 5 yellowfin tuna were captured on trolling lures. During this circumnavigation and subsequent scouting in the adjacent waters of the island, eight large flocks of birds "working" over fish schools were observed. All were moving rapidly and rather erratically but two of them were approached and chummed with no result other than some members of the schools coming near the boat and taking some of the live bait. Both of these schools were large skipjack (aku) and two other schools were identified as of the same species.

The lagoon at Canton Island was scouted for bait on February 9 and 10 and small mullet were observed in many places, as well as a few round herring (piha) and atherinids (similar to small "iao"). On the afternoon of February 10, 85 scoops of 5- to 8-inch mullet were captured with a surround net placed in the bait tank, and employed on February 11 in tuna fishing in offshore waters.

During fishing near Canton Island on the morning of February 11, one mixed school of skipjack and one— and two-pole yellowfin was chummed up with mullet, and a few hundred pounds of fish were caught, but the school sounded and could not be chummed up again. Another school, of two-pole yellowfin, was chummed up but dispersed when a fishing pole was pulled overboard by a large fish. On February 11, a total of 9 tuna schools were located near Canton Island by means of large flocks of terms and boobies "working" over them. Upon close investigation many of these were found to be schools of very small (1 or 2-pound) skipjack, and only the two schools spoken of above were induced to approach the vessel and bite. In general it appeared that there are numerous schools of tunas near Canton Island, and that there exist in the lagoon quantities of mullet which may be employed as bait for them, although mullet are not expected to survive for more than a few days in bait tanks. Commercial potentialities, however, cannot be evaluated without much more data.

"HUCH M. SMITH" RETURNS FROM A THREE-WEEK CRUISE (Cruise No. 3): An experimental form of flagline gear was tested and a new type of Japanese line-

hauling machine was used by the $\underline{\text{Hugh M}}$. $\underline{\text{Smith}}$ of the Service's Pacific Oceanic Fishery Investigations fleet. The vessel returned on April 22 from a three-week cruise in Hawaiian waters.

The gear fished was similar to that used in the Hawaiian flagline fishery for tuna, except that the hooks were buoyed to float at specified levels so that the effect of subsurface temperatures up on the vertical distribution of tunas can be investigated. The importance of this lies in the fact that such information is essential in predicting where the best fishing will be and must be available if the conditions governing the occurrence and abundance of tuna are to be known.

The Japanese line hauler was tested as a means of improving the efficiency of handling such gear. It was found to operate quite satisfactorily. It automatically coils a large part of the line which is ordinarily coiled by hand, thus enabling the vessel to fish more lines.

In addition, routine temperature observations were made from the surface to a depth of 900 feet so that the conditions existing at the level at which the fish were caught are known.

CRUISE NO. 2 OF THE "HENRY O'MALLEY" INTERRUPTED: The exploratory fishing vessel Henry O'Malley twice departed on its Cruise 2 from Pearl Harbor, first on January 11, and again on January 24 for an intended two months' cruise to include French Frigate Shoals, Johnston Island, the Line Islands, and return to Honolulu. On both occasions, the vessel was forced to return to Pearl Harbor because of excessive wear on the timing gears of the main engine. On the second departure, the vessel spent 11 days at French Frigate Shoals attempting to take bait under adverse weather conditions and departed for Johnston Island. Shortly thereafter, the Henry O'Malley was forced to return to Honolulu, and the cruise was terminated on February 10, 1950.

Weather Encountered Off French Frigate Shoals: French Frigate Shoals consists of several low islands surrounded by shoals with numerous coral heads. The shoal areas around East Island and Tern Island are readily approachable during periods of moderate east to north winds but strong winds from other quarters render approaching to depths of less than 5 fathoms difficult, if not dangerous.

The <u>Hugh M. Smith</u> was at French Frigate Shoals for a period of 7 days starting January 20. On 4 days it was possible to scout for bait but practically none was found.

The Henry O'Malley was at the shoals for a period of 11 days starting January 27, but the weather on only two days was suitable for scouting for bait. The periods of unfavorable weather were characterized by gusts of wind of varying direction and intensities up to 45 knots. Even during periods of relatively calm weather, heavy swells and choppy seas, resulting from the previous blows, prevented the launching of the bait-catching equipment. During portions of the time, it was necessary to put to sea for the safety of the vessel since the anshor would not hold. The deep draft of the vessel was a distinct disadvantage in contrast to the shallow draft of the local sampans which could have approached from any side of the islands in the lee or navigated channels for shelter behind reefs for anchorage. Baiting operations were further hampered since a sudden shift or increase in the wind could isolate the bait fishermen and endanger the gear.

Fishermen who hand line for bottom fish near French Frigate Shoals state that during the past two years, the weather would frequently have been unfavorable for bait fishing during the period of November through February. The general pattern of the wind during these months was easterly or northeasterly with severe storms during December and January from north and northwesterly with winds estimated up to 60 miles per hour. The peak of these storms usually lasted for one to two days.

Baiting Operations at French Frigate Shoals: On January 27, Tern Island was scouted for bait and several scattered schools of iao (Hepsetia insularum) and one school of aholehole (Dules marginatus) were seen, all of which might have amounted to 30 buckets of bait. This scattered bait moved to deeper water when approached and none was caught. Shark Island was scouted in the afternoon but no bait was found. Channel markers were placed to permit the approach of the Henry O'Malley but unfavorable weather required the abandonment of baiting operations until February 5.

On February 5, the weather moderated to light northeast winds but a choppy sea resulted from the meeting of northwest and southwest swells. East Island was scouted but no bait was found. Several small scattered schools consisting of needlefish, aholehole, and one school of iao were found in the shoal waters around Tern Island and sets were made. Four buckets of aholehole were captured in 5 sets using two nets with 3/16-inch mesh, 12 fathoms and 20 fathoms in length, and 1 fathom in depth. Ten buckets of iao were captured in one set using the 20-fathom net. The bait was transported a distance of approximately $2\frac{1}{2}$ miles in comparatively quiet water and was in good condition when transferred to a tank of the vessel with no observed mortality. Within an hour, the iao were tightly schooled and eating bread. The aholehole remained scattered and stayed near the bottom of the tank. All the bait fish survived and were in good condition upon arrival in Pearl Harbor. The bait was released in the water near the Fish and Wildlife pier and for five days thereafter, iao were seen near the pier.

All the hauls for bait were made at high tide and within 50 feet of the beach in clear water that varied from 1 foot to 1 fathom in depth. No bait was observed in deeper water. The bottom near the shore was littered with debris consisting of wire, snags, and large coral rocks, but the hauls were successfully made without tearing the net by carefully patrolling the lead line.

Heavy winds of varying directions and intensities up to 45 knots occurred on February 6, and it was decided to abandon baiting operations and proceed to the Line Islands via Johnston Island.

Other Activities: Each night when the vessel could anchor at French Frigate Shoals, bait lights consisting of four 100-watt yellow bulbs suspended above the water, and a submarine light of 1,000 watts submerged one fathom below the surface were used in attempts to attract bait. No fish suitable for bait were attracted. Surface trolling was conducted from sunrise until sunset for each day of travel. Two mahimahi (Coryphaena hippurus) and two cava cava (Euthynnus yaito)—closely related to the black skipjack of the Pacific coast, and little tuna of the Atlantic—were caught en route to French Frigate Shoals. On the return trip, one wahoo (Acanthocybium solandri) was caught on surface trolling lines. No attempts were made to test deep trolling gear.

While en route to French Frigate Shoals, a large number of circling birds along with several schools of porpoises were observed near Kaula Rock. Aschool

of fish accompanied by circling and diving birds was seen about a mile north of Tern Island, but it was too far away to be properly identified, and too hazardous to approach because of a projecting reef. On the return trip from French Frigate Shoals, scattered schools of fish were noted at too great a distance to determine the type or size of the schools.

Chemical sounding tubes of a type used on ocean-going ships were tested for accuracy in indicating the true depth of suspension. It was found that at depths of 10 fathoms, they were within $1\frac{1}{2}$ feet of the correct reading. This appears to solve the problem of obtaining some equipment which will indicate the depth at which trolling lures and flagline hooks are set when fishing.

"JOHN R. MANNING" RETURNS FROM SHAKEDOWN CRUISE: The John R. Manning, the last of the fleet of three Pacific Oceanic Fishery Investigation's vessels, left Honolulu April 5 on a shakedown cruise in local Hawaiian waters.

The main objective of the cruise was to make several sets with the purse seine to determine whether the net, deck equipment, and various fittings on the vessel were in proper working order and suitable for prolonged operations.

Other objectives were to test the day and night nets for catching bait, the suitability of the bait tank for holding bait alive, and the operation of the trolling gear and the bathythermograph. The cruise was also somewhat in the nature of a training period to familiarize the crew with the operation of special equipment and to break in several Hawaiian fishermen.

Upon completion of the shakedown cruise about April 12 the vessel returned to Pearl Harbor for correction of minor defects which turned up during this cruise.

"JOHN R. MANNING" DEPARTS ON SECOND CRUISE: The research vessel John R. Manning departed on April 17 for a two-months cruise to Washington, Fanning, and Palmyra Islands, and other islands in the vicinity, to conduct experimental purse-seining operations. This is the vessel's first regular research trip.

The cruise is being conducted for the primary purpose of testing the effectiveness of a standard West Coast tuna purse seine, in order to determine what modifications, if any, may be necessary for the efficient employment of this type of gear on the tuna schools of the mid-Pacific.

Concurrently with this experimental purse seine, fishing information will be gathered on the hydrography of the Line Islands region and on the biology of tunas encountered in the course of the work.

The vessel is expected to return to Honolulu about June 12.

HAWAIIAN LONG-LINE TUNA FISHERY: The Hawaiian long-line tuna fishery did quite well during March. Vessels interviewed reported two to eight fish per hundred hooks (average 3.4). The bulk of the catch consisted of big-eyed tuna and striped marlin; the latter predominated. Yellowfin tuna were scarce in the catches.



Sealskin Prices Advance at Annual Spring Auction

Prices of Government-owned fur-seal skins from the Pribilof Islands, sold at a spring auction in St. Louis in April, advanced an average of 12.6 percent over last fall's prices, the Fish and Wildlife Service announced. A total of 29,800 Alaska sealskins brought \$1,913,038.

The auction, held by the Fouke Fur Company on April 17, also included South African Government and privately-owned skins from the Cape of Good Hope.

Fur buyers paid an average of \$64.20 for United States Government Alaska sealskins. Average price at the auction last fall was \$55.93; at last year's spring auction it was \$59.55.

Dyed "matara" (brown) skins sold for an average of \$70.38, an increase in price of 28.6 percent since the last auction of Government Alaska fur-seal skins in October 1949. Average price of "safari" (lighter-brown) skins was \$50.65, an increase of 5.9 percent. Black skins averaged \$60.41, a decline of 13.9 percent.

In addition to the United States-owned skins, 2,528 Cape of Good Hope fur-seal skins were sold for the Government of the Union of South Africa, and 5,059 Cape and miscellaneous skins for private shippers. The South African Government-owned skins averaged \$21.89, a decline of 3.7 percent.



South Pacific Fishery Investigations

PACIFIC SARDINE INVESTIGATION CONTINUES: Early in April, two Scripps Institution of Oceanography research vessels (Crest and Horizon) and one Fish and Wildlife Service research vessel (Black Douglas) were reported on their third cruise this year by the Service's South Facific Fishery Investigations. They are working on the cooperative sardine research program being conducted by the above-mentioned agencies along with the California Academy of Science and California Division of Fish and Game.

Material collected on the March cruise is being sorted.

Examination of February collections showed that in that month sardine spawning was largely confined to the area off Pt. San Eugenio and Sebastian Viscaino Bay, Lower California. No eggs or larvae were taken to the north of that region. Last year's observations indicate that spawning will move northward with the progression of favorable temperatures.

During February, anchovy spawning was found to be more widespread than sardine spawning; anchovy larvae were taken off southern California and off Lower California.



Proposed Revision of Federal Specifications for Canned Salmon

A revision of the Federal specification (PP-S-3la) for canned salmon was proposed by the Federal Specifications Board the last week in April. This specification is used for purchases made by Federal Government agencies.

The proposed specification still carried the provision that "no oil shall be added" to canned salmon and omits the fish steelhead from the species of fish canned in Section 1.1. Other minor changes have also been proposed.



United States and Alaska Commercial Fisheries, 1949

(REVISES CERTAIN SECTIONS OF THE PRELIMINARY REVIEW1/)

Production: During 1949, the United States and Alaska catch of fishery products amounted to about 4.9 billion pounds, with an estimated value of approximately \$325 million to the fishermen. The catch was about 300 million pounds greater than in the previous year. However, due to a general decline in the price of fishery products, the value of the catch was about 12 percent less than in 1948.

<u>Production by Species</u>: The 1949 catch of rosefish (landed principally at Gloucester, Massachusetts; and Portland and Rockland, Maine) amounted to 237 million pounds—one million pounds less than the record 1948 catch.

The Pacific Coast catch of tuna last year amounted to 332 million pounds—6 million pounds above the former record landings in the previous year.

Menhaden production, (utilized entirely for reduction on the Atlantic and Gulf Coasts) totaled about 1,050 million pounds, making the 1949 production the largest in the history of the fishery. In 1948, 1,008 million pounds were produced, and in 1947, 973,000,000 pounds.

Due to an unexpected large run of pink salmon in southeastern Alaska, the estimated catch of salmon in Alaska and the Pacific Coast States during 1949 was about 15 percent above the 1948 production of approximately 400 million pounds. The 1949 domestic pack of canned salmon amounted to about 5,460,000 cases, compared with 4,825,000 cases in 1948.

Pilchards were found in considerably greater abundance off the California Coast in 1949 than in the previous two years, and the catch amounted to 640 million pounds, compared with 373 million pounds in 1948, and a low of 272 million pounds in 1947.

New England Production: Landings of fishery products in Maine and Massachusetts in 1949 amounted to 857 million pounds (valued at \$50 million to the fishermen), compared with 878.2 million pounds (valued at \$59 million) the previous 1/A preliminary review of the commercial fisheries of the United States and Alaska for 1949 appeared in Commercial Fisheries Review, February 1950, pp. 37-43. Since the publication of that review, additional data, recently made available, have changed some of the figures. In the article here presented, only those sections of the review in which changes occurred are given. Therefore, this article should be read in comjunction with the one that appeared in the February 1950 issue.

year. Scrap fish landings in these two States amounted to 57 million pounds (valued at about \$600,000 to the fishermen). An additional 14 million pounds of scrap fish were landed at Stonington, Connecticut; and Point Judith, Rhode Island. Remarkable developments are revealed by comparing 1949 New England fishery products landings with those of a decade ago (see table).

Landings of Fis and at Principa 1949 Com		etts Ports,
		y Landed
Item	1949	1939
Boston Gloucester New Bedford Maine	(in millio 172 251 106 292	ons of lbs. 300 76 23 116

Canned Fishery Products: Preliminary data indicate that the 1949 pack of canned fish was somewhat larger than in the previous year. It is probable that the pack amounted to about 850 million pounds, compared with 782 million pounds in the previous year.

Production of canned salmon (5,460,000 cases) was about 635,000 cases greater than in 1948. California's pilchard pack of about 4,000,000 cases was 1,350,000 cases above the previous year's production. The 1949 pack of tuna (7,200,000 cases) was the largest in history.

Fish Meal and Oil: Fish meal production in 1949 was estimated at about 225,000 tons—an increase of about 25,000 tons compared with the previous year.

Fish and fish-liver oil production was estimated about 18 million gallons—somewhat above the 1948 production of 17.1 million gallons.

Principal Fishing Ports: San Pedro, California, continued as the nation's leading fishing port with landings of about 540 million pounds, valued at \$26.5 million to the fishermen. Monterey, California, was in second place, with 285 million pounds; followed by Gloucester, Massachusetts, with 251 million pounds. While San Diego, California, (with landings of 210 million pounds) occupied fourth place with respect to the quantity landed, it was first in importance as far as value was concerned (\$31 million).

Fishermen and Fishing Craft: Current information is not available on the number of fishermen and fishing craft employed in taking fishery products; however, in 1949 an estimated 9,000 vessels of five net tons and over were operated; and about 165,000 persons were employed as fishermen. Construction of fishing vessels continued at a high level; however, only 1,002 vessels were documented as fishing craft during 1949, compared with 1,184 vessels in 1948.

Foreign Trade: Exports of edible fishery products during 1949 amounted to 149.7 million pounds, compared with 99.8 million pounds during 1948. The increase in exports resulted from large shipments of canned salmon and pilchards to the United Kingdom, and pilchards to the Philippine Islands.

Imports of edible fishery products into the United States during 1949 totaled 465.0 million pounds, compared with 472.3 million pounds during 1948. Imports of cod, haddock, hake, pollock, cusk, and rosefish fillets during 1949 amounted to 47.2 million pounds, compared with 53.7 million pounds the previous year.



United States Fish Oil Exports Largest on Record

United States inedible fish oil exports in 1949 were the largest on record, according to the April 10 Foreign Crops and Markets of the U. S. Department of Agriculture.

Normally a net importer by a sizeable margin, the U.S. exports of 19,300 short tons of fish oil were almost double the quantity imported. European countries took well over two-thirds and North American countries more than one-fifth of the total shipments.

Country of Destination	19492/	19482/	1947	1946	Average 1935-39
Lestination	1747-1	1740	n short		
forth America:	*****	****** /4	n Shor o	001107	
British West Indies	54 4,161 88 30 9	102 5,471 75 8 23	1,463 119 14 34	1,746 82 91 30	12 458 155 45 59
Total	4,342	5,679	171	19	96
South America		0	1/1	17	20
Belgium-Inxembourg France Germany I taly Netherlands Norway Switzerland	2,100 57 5,646 20 5,354	21	2 17 3 3,426	3 2	19 126 15 15 16 16
United Kingdom	2	1	11	186	77
Total	13,289	22	3,460	191	300
Asia: Korea Fhilippines, Republic of Other Total	1,323 308 38 1,669	150 1 151	25 5 30	1	66
Africa		-	-	6	2
Oceania	-	20	120	3	17
Grand Total	19,308	5.878	5.465	2,171	1,234



Wholesale and Retail Prices

WHOLESALE PRICES: Prices of edible fishery products at the wholesale level in March this year were almost 1 percent above February, but 11 percent lower than March 1949. The March 1950 wholesale index for all fish and shellfish was 97.7 percent of the 1947 average, compared to 96.8 for February and 109.7 percent for March 1949 (see tables 1 through 7).

Compared with February this year, March wholesale prices for fresh and frozen drawn, dressed, or whole fin fish increased mainly due to higher prices for fresh-water fish during the Jewish holidays, which occurred during the month. Prices of processed frozen and canned fishery products were only slightly higher, while those for processed fresh fish were slightly lower. The increases in frozen processed fish prices were due mainly to higher prices for flounder fillets; and in canned fish, to slightly higher prices for Maine sardines. Among the fresh processed fish, prices of haddock fillets increased while fresh shrimp and shucked oysters declined.

EXPLANATION OF REVISION OF WHOLESALE PRICE INDEX FOR FISH: The U.S. Department of Labor's Bureau of Labor Statistics has completed a revision of the Meats, Poultry and Fish subgroups of its Wholesale Price Index with the revision of the Dressed Poultry and Fish components. The results of the revision were first reflected in the final index for December 1949.2

A detailed explanation of the construction of the new index of wholesale prices of edible fishery products, together with tables of prices and indexes for individual items from January 1948 through March 1950, is given here in order to clarify any questions which may arise in the monthly publication of these data in this publication.

Indexes of Wholesale Fish Prices (1926 = 100): The Bureau of Labor Statistics' revision of the fish price series included in the Meats, Poultry and Fish subgroup of its Wholesale Price Index has resulted in a number of changes that are equivalent to the introduction of a wholly new list of items. Three series which have become obsolete have been dropped from the Fish index and 17 new series have been added in order to represent current market conditions. Many significant marketing developments over the past decade have been considered during the course of this revision—changes in production, in methods of handling, and in consumption habits, which are indicated in part by the growth in production of frozen fish and by the development of inland markets for salt-water species. The principal changes from the former index are as follows:

- Price series for canned red salmon, cured pickled cod, and salt mackerel have been dropped.
- Price series for drawn, dressed, or whole fin fish; fresh processed fish and shellfish; and frozen processed fish and shellfish have been included for the first time.
- The number of series for canned fish has been expanded to include additional species, making the price series more representative of all canned fishery products,
- all canned fishery products.

 1 The revision of the Fish component has been made with the assistance and advice of specialists in the Fish and Wildlife Service.
- 2/ The wholesale average prices and index of fish and shellfish for February 1950, together with comparative data (published in Commercial Fisheries Review, April 1950, pp. 52-4) was the first complete release of monthly data based on the new revised index.

-71		Novembe Relative I	
Code	Group, Subgroup, and I tem Specification	In Sub- group	In I ter
	Foods	Percent	Percen
	Heats, Poultry, and Fish:	100	100
	Fight	-	100
	Drawn, dressed, or whole fin fish:	1	22
64-1	Haddock, drawn, large offshore, fresh, per 100-1b, lots, per 1b. average price Boston Fish		
64-2	Exchange		12
	New York City		10
64-3	King salmon, dressed, large and medium, fresh or frozen, per lb., f.o.b. New York City		10
54-4	Whitefish, drawn (dressed), mostly Lake Superior, 50-60 lb. box lots, per lb., f.o.b. Chicago		1
64-5	" , round, mostly Lake Erie pound met, 50-60 lb. box lots, per lb., f.o.b. New York City		- &
04-6	Inke trout, native, drawn (dressed), No. 1, 50-60 lb. box lots, per lb., f.o.b. Chicago	30 00	å
54-7	Yellow pike, round, Michigan State (Lake Michigan and Lake Huron), 50-60 lb. box lots, por lb. f.o.b. Eew York City	11.5	1
	Fresh processed fish:		20
55-1	Haddock fillets, small, skins on, 20-1b, tins, primary shipper, per 1b., f.c.b. Boston	1	2
55-2	Shrimp, headless, large (26-30 count), 100-1b, boxes, per lb., f.o.b. New York City		10
55-3	Oysters, shucked, standards, gallon cans, per gallon, f.o.b. Norfolk area		8
-2.2	Prozen processed fish:		9
66-1	Flounder fillets, yellowtail, skinless, 10-lb, boxes, primary shipper, per lb., f.o.b, Boston		1
66-2	Haddock fillets, small, cello-pack, 10-lb, package, primary shipper, per lb., f.o.b. Boston .	-15	2
66-3	Rosefish fillets, cello-pack, 10-lb, cartons, primary shipper, per lb., f.o.b. Gloucester,		
	Mass		2
66-4	Shrimp, headless, large (26-30 count), 5-10-1b, boxes, frozen, per 1b., f.o.b. Chicago		4
	Canned fish!		38
62-1	Salson, pink, No. 1 tall can (16 oz.), 48 to case, broker to wholesaler, priced per dozen,		
	published per case, f.o.b. Seattle		18
62-2	Tuna, light meat, solid pack, No. & tuna can (7 os.), 48 to case, broler to wholesaler, per		
	onse, f.o.b. Los Angeles		14
52-3	Sardines, California, tomato pack, No. 1 oval can (15 oz.), 48 to case, broker to wholesaler,		1
	per case, f.o.b. Los Angeles		2
62-4	Sardines, Maine, oil pack, keyless, No. 2 drawn can (34 oz.), 100 to case, broker's price,		
	per case, f.o.b. New York		1

- Wider geographical representation has been obtained for all segments of fisheries products.
- New price series not heretafore systematically collected have been established to provide additional information on price movements of fisheries products.
- All important segments of the American fisheries industry are currently represented in the index.
- 7. Weighting factors used for combining individual price series for fish into indexes for all fish are based on 1947 values of production for all fisheries products, including imports but excluding emports, whereas, formerly weights represented the average of 1929 and 1931 quantities produced for sale plus imports for consumption of the particular fisheries products included in the Wholesale Price Index. Values of production of species and products not included in the list of products priced for the index have been assigned, for weighting purposes, to the priced items.

Many of the price series included in the new index of wholesale fish prices are obtained from the Fishery Products Reports of the Fish and Wildlife Service. Many are collected by the Service especially for use in this index. The index is calculated from a monthly average of one-day-a-week prices.

Careful consideration has been given to obtaining proper geographical coverage through the selection of fish species and products for pricing which are produced in the major-producing areas of the country-New England, South Atlantic, Gulf, Great Lakes, and Pacific Coast areas.

164

1/Bureau of Labor Statistics code number.

11

Table 2 - Fish Included in Former Wholesale Price Indexes for Meats, Poultry, and Fish and Relative Importance in Subgroup and Item Group Relative Importance Code No.1 In Sub- In Item Group Group, Subgroup, and I tem Specification group Percent Foods Percent Meats, Poultry, and Fish .. 100 100 Fish: .. 47 Canned salmon, pink, No. 1 tall, f.o.b. Seattle 162-1 Cod, cured, pickled, bulk, f.o.b. Gloucester, Mass. 163-1

The new index of wholesale fish prices has been introduced into the comprehensive wholesale price index at the November 1949 level of the former fish series. No combined wholesale price index for fish has been available in the past and no combined fish index on the base year 1926 = 100 will be available as part of the Wholesale Price Index.

Mackerel, salt, pickled, 200-1b. bbl., f.o.b. New York ...

Special Indexes of Wholesale Fish Prices (1947 = 100): Regular monthly publication of a special index for fish based on the average for 1947 as 100 was begun with the release of the February 1950 index. Subindexes for drawn, dressed or whole fin fish; fresh processed fish and shellfish; frozen processed fish and shellfish; and canned fishery products; and separate indexes for each of the 18 individual items used in the index also are published.

lode	Group and I tem 1/	Jan.	Feb.	Mar.	Unit	Jan.	Feb.	Mar.
		Index	Nos. (194	7 = 100)			ces in	
	All Fish and Shellfish	103.4	1 96.8	97.7	-	-		-
	Drawn, dressed, or whole fin fish:	123.9	109.4	112.4	-		-	-
64-1			110.3	108.6	Pound	.146	,106	.10
64-2			97.0	99.2	11	.327	.332	.34
64-3			115.1	117.1	**	.470	.469	.47
64-4		143.4	140.2	172.7	. 11	.496	.485	.59
64-5		117.1	120,1	142.4	11	.518	.531	.63
64-6	Lake trout, native, drawn (dressed).	123.2	125.2	136.4	**	.561	.570	.62
64-7	Yellow pike, round	105.8	108.9	135.8	11	.452	.465	.58
	Fresh processed fish:	97.5	93.0	92,1	-			-
65-1	Haddock fillets	137.8	117.9	119.5	Pound	.384	.328	.33
15-2	Shrimp, fresh or frozen	91.2	92.2	91.2	. 11	.632	.639	.63
65-3	Oysters, shucked, standards	97.2	87.7	86.2	Gallon	3.950	3.562	3.50
	Frozen processed fish:	102.0	102.4	103.0	-		-	-
66-1	Flounder fillets	96.8	96.8	119.4	Pound	.300	.300	.37
66-2	Haddock "	131.2	133.5	126.7	**	. 290	. 295	, 28
66-3	Rosefish "	106.0	106.0	103.1	19	.212	. 212	. 20
66-4	Shrimp, headless	91.1	91.1	91.1	19	.630	.630	.63
	Canned fish:	91.6	88,2	88,6	-	-		-
62-1	Salson, pink	102.7	94.7	94.7	Case	15,760	14.528	14.52
62-2	Tuna, light meat	92.7	92.7	92.7		14, 250	14, 250	
62-3		64.3	61.5	61.5	11	5.750	5,500	
62-4	Sardines, Maine, oil	71.1	73.6	76.0	11	7. 250	7.500	

These special indexes were prepared in response to increasing demands from the fisheries industry, Government agencies, and other groups and persons having need for primary market prices and price indexes for all fish and shellfish and

for particular types of fisheries products. They provide, for the first time, a comprehensive coverage of price movements of all the major groups of edible fisheries products.

	Table 4 - Monthly and Yearly Av	ernge	Tholes	ale Pr	ice In	iezes f	or Fi	hery P	roduct	194	9			
Code				-	14-		16		5.2.			0-4	w	-
No.	Group and I ten	lear	Dan,	Iren.	IMEXT,	ADF	Mary	June	July	MUR.	I Sep £,	UCT.	"AOA"	I Dec.
		100 0		1200 8	17.000 7	Index	E MURDI	FS (1)	47 = 10	10.0)	*****			
	Fish:							94.9		90.9	1 98.9	90.2	96.9	100,
	Drawn, dressed, or whole fin fish:		114.7	96.9	10%,1	95.3	92.8	91.7	94.7	98.5	105.4	105,6	106.9	111
64-1		97.1	120.7	88,0	109.4	76.6	70.2	72.5	83.8	82.6	97.2	117.1	109.6	126
64-2			88.6	05.7	1 07.5	95.6	92.5	91.9			98.5			
54-3	King salson, dressed	115.0	113.7	111.3	108.4	115.2	123.2	113.9	108.3	118.5	119.2	117.8	115.8	112
64-4			149.7	1159.0	151.7	146.0	110,4	97.5	92.5	125.4	135.8	115.3	143.1	136
164-5	* roundgg							109.4		110.1	117.3	99.9	128.5	130
64-6	Lake trout, native, drawn (dressed)	113.1	123.7	129.6	129.6	104.1	91.1	106.0	109,8	109,8	111.5	103.2	117.5	125
64-7	Yellow pike, round	96.7	109,1	127.3	115.6	74.9	72.5	89.0	112,1		103.6			
	Fresh processed fish:	90.1	95.0	91.4	94.6	91.7	81.7	64.0	89.5	87.0	89.4	90.2	90.3	99
165-1	Haddock fillets	102,1	116.8	97.7	113.4	88.5	89.1	80.4		88.9	100.2	118.4	113.6	126
165-2	Shrisp, fresh or frozen	86.7	91.2	93.4	96.5	95.6	77.9	83.3	91.2	82.9	78.8	77.6	81.3	95
165-3	Oysters, shucked, standards	92.5	95.4	86.2	86.2	86.2	86.2	86.2	86.2	93.5	104.6	103.8	99.1	98
	Frozen processed fish:	95.9	101.4	98,0	98.2	97.2	93.9	90.4 75.9 88.2	90.7	93.9	94.8 98.5 98.4	99.0	96.2	97
166-1	Flounder fillets	89.3	100,1	91.2	90.4	77.1	75.9	75.9	75.9	96.8	98.5	103.9	92.8	90
166-2	Haddock "	101.5	119.6	108,1	101.8	98.4	91.9	88,2	86.5	90.0	98.4	109.7	112.3	116
166-3	Rosefish M	103.7	110.6	105.3	110.8	115.0	106.5	92.5	90.6	92.0	97.5	108.0	109.4	105
166-4	Shrimp, headless		90.8	92.6	92.6	92.6	92.6	93.3	95.5	95.5	91.5	89.7	85.0	88
	Canned fish:		122.7	12.1	123.8	120,3	119.0	104.2	103.6					93
62-1	Salmon, pink	126.1	152.5	152.5	154.1	147.7	147.7	115.6	1118.8	1 25. 2	110.8	102.7	102.7	102
162-2		103.7	1.09.0	1209.0	109.0	1109-0	105.1	102.5	102.5	hos . 8	99.9	99.9	99. 2	90
162-3		77.4	83.9	83.9	83.9	83.9	83.9	183.9	83.9	81.6	74.1	65.4	55.9	62
162-4		81.6	88,	90.7	90.7	85.8	85.8	85.8	72.3	77.0	1 84.6	75.5	71.1	71

The five series for drawn, dressed, or whole fin fish (haddock, halibut, king salmon, two series for whitefish, lake trout, and yellow pike) reflect price movements of fin fish in landed condition. The price series for fresh processed fish (fresh haddock fillets, shucked oysters, and fresh shrimp) reflect price movements of fresh fishery products which have undergone some processing plus landed values of unprocessed shellfish. The price series for frozen processed fish (flounder fillets, frozen haddock fillets, rosefish fillets, and frozen shrimp) reflect price movements of all frozen fish fillets and shellfish which have been frozen or otherwise processed, but not canned. The price series for canned fish (pink salmon, tuna, California sardines, and Maine sardines) reflect price movements of all canned and cured fish and shellfish.

olai.							-				T	T	T	
	Group and I tea	Year	Jap.	Fab.	Mar.	Apr,	May	June	July	Aug.	Sep t.	Oct.	Nov.	Dec.
	man and a second	****	*****	******	*****	Index	Mumber	rs (19	17 = 1	00,0)	*****			****
	Fish:	110.0	119.0	1116.1	108,9	102,9	104.8	105.4	107.0	109.1	113.9	112,1	1110.	1111
4-1	Drawn, dressed, or whole fin fish:	100,0	125.7	112.0 129.1 90.1 109.9	90, 2	91.0	96.3	90.7	100,6	107.3	115.1	112.4	110.	116
	Haddock, drawn, lge. offshore	111.1	153.7	129.1	89.0	86,3	29.5	87.7	91.8	105.5	124.1	119.7	118.6	136
4-2	Halibut, Western, dressed	91.3	97.0	90,1	84.3	78.4	83.9	100.7	91.6	95.4	93.7	93.7	93.7	90
4-3	King salmon, dressed	114.0	115.4	109.9	106, 2	99.0	108.9	110,1	119.5	119.9	123.0	123.0	119.4	1114
4-4	Whitefish, drawn (dressed)	120.0	1137.0	111/07	1105.0	145.6	91.4	73.7	100,1	1126,0	1117.0	1119.6	1120, 2	21126
4-5	" , remi	116.6	1107.9	107.9	145.6	135.9	91.0			109.2				
4-6	Lake trout, native, dress (dressed)	108,6	108.7	114.2	124.3	105.4	77.7	97.1	107.6	115.3	117.8	103.5	110.7	1117
1-7	Tellow pike, round			117.1				88.2	106.3	101.1	107.0	100, 2	85.0	10
	Fresh processed fish:	96,6	112	1113,1	102.0	87.9	94.4	94.4	92.4	89.6	96.4	92.1	94.3	2 92
5-1	Haddock fillets		141.0	130.0	103.7	97.0	106, 2	98,1	94.3	113.9	123,5	123.3	114.	112
5-2	Shrimp, headless, fresh or frozen	88, 2	105.3	108.2	101.6	80.2	90.2	91.5	88,5	77.6	83.5	72,5	77.	5 8:
5-3	Oysters, skucked, standards	1	116,5	116.9	102,2	98,5	1/	1/	1/	1/	110,8	116,9	116,9	98
	Frosen processed fight			114.9										
5-1	Flounder fillets	115.8	121.4	125.9	129.1	128.3	120.2	1113.0	111.4	113.9	114.6	113.0	102.	9
5-2	Haddock * **********************************	120.8	130.7	138.6	119.4	108.6	107.7	115.4	113.1	121 5	133.6	139 /	1 28.	112
6-3	Rosefish "	111.2	142	138.7	117-0	105.0	95.6	92.0	92.5	104.0	1118.1	117.6	109	108
6-4	Shrimp, headless			92.6										
	Canned fish:	間を開こ	1120.	112111	121.1	120.1	1119.2	11:20.1	1121.6	11 22.0	1123	11 24 C	111 22 (112
2-1	Salson, pink	142.0	134.1	134.9	134.9	134.9	134.9	137.4	h41.3	145.1	152.6	154.1	151.6	1149
2-2	Tuna, light ment	109.0	109.0	109.0	109.0	0.001	109.0	109 0	309.0	109.0	109 6	109 0	109	1100
2-3	Sardines, California, tomato	110.2	134.	134.2	134.2	1.23.0	1111.8	111.8	h11.8	100.6	100.6	95.1	83.	8
2-4	Sardines, California, tomato	95.0	100.	100.5	100.5	100.5	100.5	99.3	98.1	95.6	85.8	AE B	85	A Ai

h its is

-	Table 6 - Monthly and Tearly	Avere	ge Who	esale	(Princ	ry Maz	le t) !	rices	for Fi	shery	Produc	cts, 19	49		
lo.	Group and Item	Unit	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Hov.	Dec.
						3	3			1	3		3	3	3
	Pish										-17				-11
164-1	Brawn, dressed, or whole fin fish: Haddock, drewn, lge, offshore	Pound	.093	.124	.084	.105	.074	.067	.070	, oAn	.079	.093	.112	.105	,12
	Ealibut, Western, dressed		.314	304	. 294	300	.328		315	.312					
164-2	Ring salmon, dressed	10	.469	464	454	.442		502	464	.442		.486	.481	.472	
164-4	Thitefish, drawn (dressed)		AAG	67.8	660	.525			338	.320	.434				
164-5	* round		.449	.464 .518 .652 .563	.454 .550 .598	.481	.565	.518	.464 .338 .484	.441	.487	.519			670
164-6	Lake trout, native, drawn (dressed)	01	.515	563	590	.590			482	,500	500	508	.479	.535	.579
164-7	Yellow pike, round	00	.413	.466	.544	494			.380	.479				386	311
rod-1	Fresh processed fish:		042	80,00	•		0/20	8,200	.,,,,,,	04.7.2	84.10	0.000-2	0,40	*,0)	
165-1	Haddock fillets	16	. 284	.325	.272	.316	. 246	. 248	. 224	.254	. 248	.279	.330	.316	.35
165-2	Shriso, fresh or fromen	-	.601			.669	.662	.540	.578	.632			.538	. 564	.35
165-3	Oysters, shucked, standards	Gal.	3.760	3.875	3,500	3.500	3,500	3.500	3,500	3,500	3.800	4, 250	4.219	4.025	4.00
	Frozen processed fish:										1				
166-1		Pound	.277	.310			. 239	.235		. 295	.300		.322	. 288	. 280
166-2	Haddock *	- 11	. 224	. 264	.739	. 225	.218	. 203	.195	.191	.159	.218	. 242	, 248	. 25
166-3	Rosefish "		. 207	. 221			. 230	.213	.185	.181	.184	.195	. 216		. 211
166-4	Shrimp, headless	- 4	, 634	.628	.640	.640	.640	.640	.645	.660	,660	.632	.620	.588	.610
	Canned fish:														-
162-1	Salmon, pink	Oh.80	19.652												
162-2	Tunn, light meat		15.942	16,750	16,750	16.750	16.750	16.150	15.750	15.750	15,650	15,250	15,250	15.250	15.25
162-3	Sardines, California, tomato		6.918	7.500	7.500	7.500	7.500	7.500	7.500	7.500	7.300	6.625	5.850	5.000	5.62
162-4	" , Maine, oil		1 8,317	9.000	9,250	9, 250	8.750	18,750	8,750	7.375	7.850	8,625	7.700	7.250	7.25

Monthly and yearly special indexes with 1947 as 100 have been computed and are available only for the period from January 1948 to date. Indexes and monthly average prices for each of the 18 series are presented in tables 3 and 4.

de	Group and Item	Uni t	Tear	Jan.	Feb.	Mar.	Apr.	May	June	July	Ann	Sept.	Oct.	Now.	Dec
-	Un Duly Gast 2 bear	000	3	3	8	8	8	3	3	8	3	3	3	3	-
	Plah		-	-	-	-	-	-	-	-	-	-		-	
	Drawn, dressed, or whole fin fish:											100	1		
4-1		Pp"	.107	.184	.124	.086	.083	.096	.084	.088	.101	.119	.115	.114	.1
4-2	Halibut, Western, dressed	*	.313	.332	.309	. 289	. 269	, 268	.345	.314	.327	.321	.321	.321	.3
4-3	King salmon, dressed		.465	.471	.448	.433	.404	.444	.449	.488	.489	.502	.502	.487	.4
1-4	Whitefish, drawn (dressed)	111	.415	.476	.405	. 566	.404 .504 .601	.316	. 255	.346	.436	.408	.414	.416	.4
-5			.516	.831	.478	.433 .566 .644 .668	.601	.402	. 297	.464	.483	.601	.515	.487 .416 .426	.4
1-6	Lake trout, native, drawn (drsd.		.495	.495	.520	. 566	.480	.354	.442	.490	.525	.536	.471	.504	
-7	Yellow pile, round	- 18	.442	.450	.500	.608	.415	.374	.377	, 454	.432	.457	.428	,363	
	Fresh processed fish:		200	ninke				1107		1000	1.0	TOE 1		110	
5-1	Haddock fillets	14	.317	.392	.362	. 268	. 570	. 296	. 273 .634	. 262	.317	.344 .579	.343	.319	
-3	Shrimp, fresh or frozen			.730	.750	.704	.556	.625	.634	.614	.538	.579	. 502	.537	. 1
3	Oysters, shucked, standards	Gal.	1/	4.750	4.750	4.150	4.000	1/	1/	1/	1/	4,500	4.750	4.750	4.
	Frozen processed fishs					-					-				-
5-1	Flounder fillets	Cb.	.359	-376	.390	.400	.398	372	.350	.345	353	.355	.350	.316	
-2	Haddock "	R	.359	. 289	.306	.400	240	238	266	250	26R	.295	.308	,264	1
6-3			. 222	.376 .269 .265	.278	.234	.240	.372 .238 .191	.255	.250	.353 .268 .208	.296	. 295	.219	1
-4	Shrimp, headless		.621	.640	.640	. 540	.636	-564	595	.640	.670	.642	595	.598	
-	Canned fish:			-	-	1.00	100	-		8.040	8070	0.000	2111	4,70	-
2-1	Salson, pink	Case	2.776	20, 560	20.684	20.684	20.684	20. 6Ra	25.080	21,672	22.260	23 392	23 640	28 248	22
2-2		00	16.750	16.750	16.750	16.750	16,750	16.750	16 750	16.750	16 750	16 750	16 750	16 750	16
2-3		H	9.856	12,000	12,000	12,000	11.000	10.000	10,000	10,000	9.000	9,000	8,500	7,500	7.
2-4			9.683	10, 250	10, 250	10, 250	10.250	10.250	10.126	10,000	9.750	8,750	8 750	8 750	1 6

The base period (1947 = 100) for the special indexes of wholesale fish prices is subject to change at such time as the comprehensive Bureau of Labor Statistics Wholesale Price Index is revised and a new base period is adopted.

RETAIL PRICES: After declining for three consecutive months, the retail food price index on March 15 rose to 196.0 percent of the 1935-39 average. This was 2.8 percent above August 1939. Higher prices for meats, poultry, and fish; eggs; and coffee were mainly responsible for the over-all rise in the food index between mid-February and mid-March.

Prices of all fish and shellfish (fresh, frozen, and canned) at retail rose 3 percent from mid-February to mid-March this year (see table 8). The increase was attributed to increases in fresh and frozen fish.

Table 8 - Betail Price Indexes for Foods and Fishery Products, March 15, 1950, with Comparative Data											
Item Base Indexes											
All foods	1935-39 = 100	Mar. 15, 1950 196.0	Feb. 15, 1950 194.8	Mar. 15, 1949 201.5							
(fresh, frozen, and canned) Fresh and frozen fish Canned salmon: pink	1938-39 = 100 do	302.5 281.2 332.1	293.7 265.1 345.6	325.9 266.8 462.7							

Fresh frozen fish prices advanced on March 15 this year to 281.2 percent of the 1938-39 average and were 6 percent greater than on February 15 and 5 percent higher than on March 15, 1949. On the other hand, canned pink salmon prices fell to 332.1 percent of the 1938-39 average and were 4 percent below mid-February this year and 28 percent lower than mid-March a year earlier.

World Status of Tin

The International Tin Study Group met in Paris during the last week in March at the Ministry for French Overseas Territories, according to a March 30 Department of State news release.

The Group examined the future position of the tin industry and the likely trends in its production and consumption under assumed conditions. It estimated that world production, which had been 161,000 long tons in 1949, would be 172,000 tons in 1950, 191,000 tons in 1951 and 199,000 tons in 1952. In these estimates it was assumed that conditions conducive to full production and also political and social stability in the main producing countries would exist; it further assumed only production from plant and equipment already in operation, under rehabilitation and under commitment.

Unrestricted consumption of tin for commercial purposes under full industrial production was estimated at 127,000 long tons in 1950, 136,000 tons in 1951 and 140,000 tons in 1952. World consumption of tin in 1949 had been 118,000 tons.

The estimates showed, therefore, that there might be an excess of production over consumption for commercial purposes of about 45,000 tons in 1950 and higher figures later. On the other hand, it appeared very likely that for some time (although the Group could not indicate for how long ahead) substantial tonnages of tin would be absorbed by the United States for strategic stockpiling purposes over and above the demand for commercial purposes.





Argentine Republic

SEEKING GERMAN FISHING EXPERTS: Argentina is planning to establish a fishing industry in Patagonia and has asked German government officials for assistance in recruiting 5 fish cutter captains and a limited number of experienced crew members, a March 16 American consular dispatch from Bremerhaven reports. Reportedly it is planned to build new discharging quays and cold storage plants in Patagonia, and to put into operation a fleet of large fish cutters.



Brazil

INTERNATIONAL AGREEMENT FOR THE REGULATION OF WHALING APPROVED BY BRAZILIAN CONCRESS: By Legislative Decree No. 14 of March 9, 1950, the Brazilian Congress approved the International Agreement for the Regulation of Whaling, and the annex thereto, signed in Washington on December 2, 1946, an American consular dispatch from Rio de Janeiro dated March 20 reports. The President of the Senate promulgated the decree, which was published in the Diario Official of March 10, 1950.



British North Borneo

REVIEW OF THE FISHERIES, 1949: Survey of Industry: A primary survey of the fishing industry in North Borneo continued in 1949, a March 30 American consular report from Singapore states. Surveys were made of the daily sales of fish in the Sandakan fish market with about 400 species of fish having been identified during the year. Although the question of establishing controlled cooperative societies was examined, it was concluded that their formation was premature at the present time.

Pond Culture: Experiments were carried out in the culture of fresh- and salt-water fish of suitable species to be introduced into "padi" areas when irrigation becomes available. Four fish ponds of one acre each were started outside of Sandakan, two of which were for fresh-water fish and two for salt-water fish. The fresh-water fish, sepat siam (<u>Trichogaster pectoralis</u>), consisted of 25 pairs. These fish are referred to as "the poor man's dinner," and are not a first-rate fish. Some of the fish will be sent to the Labuk Bay area in January 1950 for use in the "padi" fields. The salt-water fish ponds, which are still in the early experimental stage, consist mainly of mullet and herring.

<u>Fishermen's Rehabilitation</u>: A Fisherman's Rehabilitation Scheme was started whereby the government supplies hooks and twine for making fish nets for needy fishermen. Over 900 fishermen were supplied in this manner during 1949.

Collection of socio-economic data in regard to the debt-bondage system under which such a large number of fishermen exist was undertaken. Chinese "towkays" or moneylenders have for many years kept a large proportion of the native fishermen perpetually in debt through exhorbitant loans and the exaction of a large share of the profit from the fish catches. The North Borneo Fisheries Department is hopeful that it will be able to collect sufficient evidence whereby such "towkays" can be prosecuted.

A commercial venture, approved by government, will be started in 1950 whereby eight Chinese junks from Hong Kong, about 60 to 70 feet each in length, will carry on fishing activities along the West Coast of North Borneo. If successful, more boats of this type may be brought in.

Exports: The principal fisheries products exported during the year were salt fish, dried prawn and prawn dust, shark fins, and trochus shells. No fishery products were imported.

	1	9 4 9	1948				
Commodity	Quantity	Val	u e	Quantity	Val	ue	
Fish, salted, dried, or canned Fish maws "Blachan" Prawns, dried or fresh Prawn scrap Trepang Other sea products	Metric Tons 820 4 1 135 91 1 5 135	\$\frac{\sqrt{13,135}}{\sqrt{96}} \\ 288,579\\ 16,334\\ 2,509\\ 5,051\\ 52,359	U.S.\$ 220,353 6,239 46 137,075 7,759 1,192 2,399 24,871	Metric Tons 862 3 2 103 144 1 13 95	Singapore \$ 436,121 14,671 608 234,513 15,807 2,580 7,019 41,764	U.S.\$ 207,15 6,96 28 111,39 7,50 1,22 3,33 19,83	
Turtle and turtle shell Pearls, cultured or seed NOTE: Values converted on the b 47.5 cents U.S.	Pounds 521 138 asis of the av	588 59,554 erage rate of	279 28,288 exchange	Pounds 82 52 of one Sings	93 13,211 spore dollar	6,27	

The Fisheries Department: The Borneo Fisheries Department has its main office at Sandakan with three substations located at Labuan, Tawau, and Jesselton. The equipment of the Department was increased in 1949 by the purchase of a locally-built vessel with a 34-h.p. diesel engine, which is used for inshore fishing tests and the training of fishermen in the use of powered fishing vessels.

Outlook: Improvements in the Colony's fishing industry will continue very slowly in view of the lack of sufficient funds allocated for the purchase of equipment.



Canada

GOVERNMENT'S PLANS FOR THE DEVELOPMENT OF THE COMMERCIAL FISHERIES: The Government's share in the program for the development of Canada's commercial fisheries will include leadership in research and consumer education, and action to formulate international policies designed to protect the fishery resources and help export trade.

This outline of the Government's plans was given in Ottawa by the Canadian Minister of Fisheries during a luncheon address on March 21 at the fifth annual meeting of the Fisheries Council of Canada, reports the March 1950 <u>Trade News</u> of the Canadian Fisheries Department.

In connection with research, the Government stated that "research was believed to form the headlights of the industry" and the program was being expanded further.

The Minister reported that at the present session of Parliament, the Canadian Department of Fisheries hoped to get ratification of the International Northwest Atlantic Fisheries Treaty which is aimed at the conservation of vast fishery resources off the Maritimes and Newfoundland.

With reference to a fisheries treaty for the Pacific, the Minister said:

"We have under consideration also a treaty on fisheries for the Pacific which may become a separate treaty on fisheries or which may be incorporated as part of the Peace Treaty with Japan."

In addition, the Minister pointed out that consumer education was being pushed as rapidly as possible.

FISHING EFFICIENCY OF DORY SCHOONERS AND OTTER TRAWLERS: A Canadian study of the comparative efficiency of vessels in the capture of cod and haddock has been made possible through the plotting of the average catches of the four largest dory schooners and the four largest otter trawlers carrying out continuous fresh fishing operations from Canada's Atlantic seaboard.

A summary report on the Maritime Groundfish Investigation performed by the Atlantic Biological Station of the Fisheries Research Board of Canada, points out that the introduction of new fishing methods has an important effect on the catch of fish.

By measuring catches made with various fishing methods, an attempt is being made to assess the efficiency of each method and the potentialities of effecting an increase through improved fishing efficiency.

Detailed records of each offshore fishing trip gives the Fisheries Research Board valuable information on abundance and fishing efficiency. A backlog of trip reports collected by the Department of Fisheries has been useful in building up the long-term picture of offshore fishing.

The plotting of average catches shows that the relative catches of otter trawlers and schooners differ from year to year. When haddock were abundant in the thirties, otter trawling proved to be an effective fishing method, but when cod were abundant during war years, line-fishing vessels, in general, made better total catches. In some years fish are abundant on the smooth grounds on the tops of the fishing banks while in others the fish are more readily available on the deeper and rougher parts of the banks. Since otter trawling is restricted to the smoother fishing grounds and line fishing is less restricted by bottom type, otter trawl catches are more variable than those of schooners.

In comparison with otter trawling, dory fishing is an efficient fishing method on grounds adjacent to the Maritimes, according to the information obtained by this investigation. The lower capital cost and lower operating expenses in schooner fishing, together with the high efficiency of this method, particularly in fish-

ing salt cod, suggests that the dory method will not be replaced quickly by otter trawlers on the Canadian east coast. Dory fishing is a rigorous life and the survival of schooner fishing hinges on the problem of finding dory fishermen rather than the relative efficiency of the method.

A major part of the groundfish investigation is concerned with the measurement of catches made with methods which are new to the Maritimes. The WestCoast long-lining method was studied by the construction and operation of the long-liner M.V. J.J. Cowie (49 gross tons) and the purchase of four small gurdies which were operated by inshore fishermen in various parts of the Maritimes. The experiments showed that the use of a gurdy in line fishing reduced effort and permitted the handling of more gear, and thus, more fish. Power hauling was shown to be particularly useful in hauling heavy gear and large fish from deep water. This work stimulated the development of power hauling of line trawls by inshore fishermen in the Maritimes and power haulers of various types are now common in southwestern Nova Scotia.

During the past two years, the $\underline{J}.\underline{J}$. Cowie has been used for Danish seining experiments. The method is clearly efficient for the capture of flounders. However, it must be remembered that the value of Danish seines is strictly limited since the use of this gear is restricted to smooth bottom and such grounds are not common in the Maritimes.

Bait experiments in the hake fishery during the summer of 1949 at Souris, P.E.I., showed that squid and mackerel, although expensive, yielded a greater net profit than the cheaper baits which were available locally.

The development of a variety of fishing methods is essential if groundfish resources are to be exploited more fully. Many of the groundfish species with small mouths (rosefish and witch, yellowtail, and winter flounder) are not available to line fishermen and other methods of capture must be used for these species.

In the measurement of the groundfish catches of the Maritimes, the ground-fish investigation has been concerned with measurements of species, area and season of total catch, landed value, fishing efficiency, new concentrations of fish, abundance, migrations, growth, recruitment and mortalities. All these measurements are considered to be of importance in determining the potentialities for increasing the groundfish catch of the future. About half of the effort of the investigation is spent on a study of fishing efficiency and exploration, and the other half in the statistics for the measurement of the abundance and the factors controlling abundance. It is expected that both lines of attack will pay dividends.

POSSIBLE MARINE SOURCES OF INSULIN BEING STUDIED: The Canadian Pacific Fisheries Experimental Station is investigating the possibilities of obtaining commercial quantities of insulin from certain types of fish and whales.

According to the Banting Institute, the demand for insulin has been doubling every five years since 1930. Since present supplies of insulin are obtained from beef pancreas, a relatively fixed supply, the potential importance of the fishing and whaling industries as suppliers of insulin can be readily visualized.

From investigations made during the summer of 1949, it would seem that the most promising marine sources of insulin on the Pacific Coast are to be found in halibut and whales. In the halibut, the insulin-producing specialized tissue known as islets of Langerhans is concentrated in a capsule closely associated with

the gall bladder. Previous investigation has shown that the insulin content of these capsules is very high. They are remarkably easy to find, but the material requires immediate preserving because of its rapid rate of deterioration. In the present investigation, two types of preservation were tried—freezing in the natural state and the use of an acid—alcohol mixture—and it remains to be seen which is the more effective.

In the case of whales, the islets of Langerhans tissue is dispersed throughout a digestive gland called the pancreas. The average whale pancreas weighs in the neighborhood of 75 pounds and for the purpose of this experiment, five representative samples were taken from the pancreas of 10 sperm, 9 finback and 4 humpback whales. This material was preserved by immediate freezing.

All the material obtained during this project will be forwarded to the Connaught Laboratories in Toronto where the insulin extraction will be carried out. When this is completed, information will be available as to the total cost of obtaining the insulin and, therefore, its market value.

* * * * *

NEWFOUNDLAND'S LOBSTER FISHERY, 1949: Newfoundland's production of live lobsters for export during 1949 reached an all-time peak of 3,912,074 pounds, valued at \$978,018 (Canadian)—an increase above 1948 of 9 percent in quantity and 25 percent in value, an American consular dispatch from St. John's, dated March 16, reports. Exports of canned lobster in 1949 were 140,112 pounds, approximately 7 percent over shipments in 1948.

17-1		Quan	tity	Value					
Type	1949	1948	1947	1946	1949	1948	1947	1946	
			pounds)				n dollars		
Live (round wt.)	3,912,074	3,387,886	3,253,647	12,596,696	978,018	779,449	683,802	660,12	
Canned (net wt.)	140,112	129,665	152,298	193,667	2/	174,514	166,301	296,34	
Total	4,052,186	3,517,551	3,405,945	2,790,363	2/	953,963	850,103	956,46	
Value of Canadi	an dollar f	rom 1946 th	rough 1949	has fluctus	ted from	90 cents	to \$1.00	U.S.	
Since for most	of the peri	od 1946-49	it was valu	ed at \$1.00	U.S Wa	lues give	n may be	read as	
United States d	lollars.	SAN ALL			10,10	Man Wall	1223/2000		
2/Data not avails									

Exports of live lobsters are made to the United States and the Canadian mainland, and the trade depends primarily upon the United States market, which took approximately 64 percent of all live-lobster exports in 1948.

The shipment of live lobsters to the American market began in the 1920's, but suffered some decline during the 1930's. A gradual revival began immediately prior to the war, and since 1946, the trade has been appreciably expanded. Air shipments of live lobsters to metropolitan United States markets are becoming more commonplace, and it is estimated that approximately one million pounds were moved to these outlets by air during 1949.

Lobsters have been canned in Newfoundland for almost one hundred years, and this phase of the lobster industry reached its peak toward the close of the last century. Canned lobster production declined after 1900, but revived somewhat after the end of World War I. The Newfoundland lobster fishery was nearly exhausted by 1925, and a closed season on lobsters for the years 1925-27 was imposed by the Government as a conservation measure. During the closed-season period,

many of the larger lobster canneries went out of business, and after the closed season was abolished, the Newfoundland Government, through the Fisheries Board, began to control canning operations through a system of licenses, in order to improve the quality of the pack and to expand the live-lobster fishery. The latter automatically permits better conservation because large lobsters are demanded by the trade. During 1949, 151 canning licenses were issued as compared with 199 issued in 1948, and 246 in 1947. The declining trend of canned lobster exports reflects the efforts of the Fisheries Board to encourage, in the interests of conservation, production of live lobsters rather than the canned variety.

During 1948, 70 percent of the canned lobster exports were made to the United States, with the remainder to Canada. Previously, markets had existed in Europe for the product, but European trade in this luxury item has been negligible since the end of World War II.

While the lobster fishery is a minor factor in Newfoundland's fishing industry, it has been a source of considerable supplemental employment and income to seasonally unemployed cod fishermen, loggers, and farmers. The industry is not capable of appreciable expansion, since Newfoundland waters are considered to be too cold for optimum survival and growth of lobsters. However, serious efforts are being made to prevent the taking of undersized and berried lobsters, and shipments of live lobsters are inspected for minimum size. The growth of the live lobster trade, which requires large lobsters, is undoubtedly contributing to the prevention of another near-exhaustion of the lobster fishery.

Outlook: With the continuation of present trends, the production of live lobsters for export will probably exceed 4 million pounds during the 1950 season. Some decrease in exports of canned lobster will probably occur. The United States is expected to remain the principal market for both live and canned lobsters, with the Canadian mainland receiving the remaining exports.

* * * * *

CATHERS DATA ON ATLANTIC SEALS: In order to collect information on seals in Canada's east coast waters, scientists of the Fisheries Research Board of Canada have completed a series of flights over the Gulf of St. Lawrence area and east of Newfoundland. Aerial photography is being used to estimate the seal herds, according to the March 1950 Trade News of the Canadian Fisheries Department.

In addition, information on seal reproduction, stomach content, weights, and measurements of all age classes is being collected by special officers assigned to sealing vessels during the sealing season. It is hoped they will also be able to do some tagging to show migrations.

The investigations are designed to provide an accurate basis of information on the population of harp and hooded seals of the Western North Atlantic, the exact nature of their migrations, and relationships with more northern populations which are not involved in the present Canadian sealing industry.

Newly-born young or "white-coat" harp seal form the basis of the present Canadian sealing industry, as well as smaller numbers of the subadult or "bedlamers" and the adult harp seal.

Chile

GERMAN-CHILEAN COOPERATIVE PLANS FOR FISHING INDUSTRY: A fishing trawler (300 gross-registered metric tons) and 2 fishing cutters are being fitted in Hamburg for the long voyage to Valparaiso, Chile, where they will fish in Chilean waters for three years, a March 17 American counsular dispatch from Hamburg reports.

This is part of a German-Chilean cooperation plan, instigated by a Hamburg exporter and shipowner, together with a Chilean-Swiss industrial syndicate which will establish a fish industry enterprise in Chile. In the vicinity of Valparaiso, large factories will be set up where 150 metric tons of fresh fish can be handled daily. A daily production of 50 tons of canned fish and 100 tons of fish meal is planned. No decision, however, has been made yet in regard to the exact location of these plants since it depends on the water facilities. The city of Quintero is considered especially suitable since 656 feet of wharf space are available for the small fleet.

A number of Hamburg firms will participate in the shipment of equipment for canneries, cold storage plant, a fish meal factory, etc. German technicians will help to set up the factories.

The Chilean government is extremely interested in this project since Chile owns no fishing vessels. Long fishing trips will not be necessary for the fishing banks are right off the Chilean coast. The catches will contain, among others, small- and large-size sardines, herring, tuna (which appear in schools of thousands), spring lobsters reaching a weight of several pounds, bonito, and sharks. All of the catches are to be processed and sold in Chile. Only canned tuna will be exported to Germany.

* * * * *

SWISS-CHILEAN GROUP CHARTERS GERMAN FISHING CUTTERS: In addition to the German vessels which were reported early in March as proceeding to Chile to engage in the fishery off the coast of that country, it is now planned to send two other German fish cutters as well. These vessels have been chartered for three years by a Swiss-Chilean group and will be used off Valparaiso, according to an American consular dispatch from Bremerhaven.



Cuba

SPINY LOBSTER EXPORTS UNDER LICENSE CONTROL: Cuban spiny lobsters may not be exported without a permit from the Ministry of Commerce, according to a circular issued March 17, 1950, by the Cuban Customs. The circular states:

.... Lobsters are subject to export control...in accordance with Decree 385 of 1941...and Decree of February 20, 1942 published in Official Gazette of February 25...(Lobster) exports without a covering permit are forbidden, and this applies in particular to vessels which come to Cuba and buy from fishermen...and freeze or refrigerate on board...The (vessels) pay no national taxes...and exports on them are prejudicial to Cuban processors and workers freezing or cam-

ning lobsters... Any lobster catches on board ice-laden boats (neveros), sail-boats or any other vessel reaching Cuban ports shall be construed as caught within Cuban territorial waters, unless proof to the contrary recognized by law is produced.

Since January 1949, a United States vessel, the Clair-Ellin (a subchaser converted into a spiny lobster quick-freezing ship) has been operating off the Isle of Pines. The ship's refrigerated storage capacity is 18,000 pounds. In recent months, it has quick-frezen monthly only 6,000 pounds, which have been flown to Miami from Nueva Gerona via Habana.

* * * * *

<u>OUTFITS A VESSEL FOR MARINE RESEARCH</u>: In 1949, Cuba equipped its first vessel to undertake marine research, reports a March 24 American consular dispatch from Havana. The Cuban Navy, with \$100,000, overhauled the tugboat <u>Yara</u> (originally built in 1893) and equipped it with instruments, apparatus, fishing gear and paraphernalia, as well as other devices with which to do hydrographic, zoologic, and ichthylogic research work.

The crew of the Yara consists of 7 officers and 42 men.



THE 57-YEAR-OLD CUBAN TUGBOAT YARA, WHICH HAS BEEN CONVERTED INTO A HYDROGRAPHIC, ZOOLOGIC, AND ICHTHYOLOGIC RESEARCH VESSEL.



A REED DEEP-SEA FISH POT MADE IN CUBA.



Ecuador

CONDITIONAL LOAN GRANTED FOR FISH CANNERY: A representative of American and Foreign Enterprises, Inc. indicated in mid-April that the International Bank for Reconstruction and Development had granted the firm a loan of \$850,000 (on one condition) for the erection of a coastal fish cannery in accord with provisions of the agreement between the firm and the Ecuadoran Government, reports an April 4 American consular dispatch from Quito. The representative of the company is in Ecuador to satisfy the one condition, namely to persuade Ecuador to settle its debt to Southern Railway (Ferrocarriles del Sur) bondholders.

It was the hope of the company representative that the bondholders could be reimbursed in sucres (Ecuadoran money) for the principal amount of their holdings with a provision for converting the sucres into cannery stock, and that back-interest obligations could be settled on a nominal basis. A decision will be made by the Ecuadoran Government by the first part of May. If the railway debt could be settled satisfactorily, work on the cannery is expected to begin promptly.



Egypt

SPONCE FISHERY, 1949: Production: The 1949 sponge fishing season, which started in June and ended by October in the Marsa Matrouh area, west of Alexandria, was very successful. Egyptian sponges (sponges from Marsa Matrouh), fished in 1949, totalled 77,073 pounds net, as compared with 1,359 pounds in 1948 and 32,547 pounds the year before. Of the total 1949 sponge catch, the honeycomb type represented about 71 percent; the Turkey cup, 21.5 percent; and the zimocca, 7.5 percent (see table), according to a March 24 American consular report from Alexandria.

Egyptian Sponge Pr (By Species a			-49
Species and Grade	1949		1947
Turkey cup: 1st Grade 2nd ** 3rd ** 4th **	11,293 3,679 1,180 198	108	
Total Turkey cup	16,350	375	9,119
Honeycomb: lst Grade 2nd " 3rd " 4th " Total Honeycomb	28,349 15,863 8,532 2,259 55,003	340 522 122	
Zimocca (zimouha) 1st Grade 2nd ** 3rd ** 4th **	2,460 1,629 949 682		994 476 240
Total Zimocca	5,720	-	1,710
Grand Total	77,073	1,359	32,547

In 1948, there were only two Egyptian sailing vessels (with inexperienced crews composed of young native divers) engaged in sponge fishing. The Dodecanesan Greek divers, first-class sponge fishers, refused to work in Egyptian waters because of the Egyptian Government's requirement that all production be sold in Egyptian markets for processing and export against American dollars or British pounds sterling. Production dropped to a very low point, only 1,359 pounds.

In 1949, the Greek Government concluded a provisional agreement with the Sponge Fishing Company of Egypt, sole concessionaire for sponge fishing in Egyptian waters. Under this agreement, spongefishing permits were issued to 18 Dodecanesan Greek sailing vessels equipped with all types of diving apparatus upon payment of approximately \$11,000 (at predevaluation rate of exchange) for each license. This

fleet of eighteen vessels was accompanied by an auxiliary fleet of 20 boats used for food and water supplies and for storage. Two Egyptian vessels with diving gear and three auxiliary boats joined the Greeks. With 560 Dodecanesan Greek and 90 Egyptian divers and sailors engaged in operations, the 1949 production amounted to 77,073 pounds.

Marketing: All efforts of the Egyptian concessionaire to sell the 1949 production in Egypt to hard currency countries or to Great Britian met with no success because British and American buyers preferred to buy from the Greek sponge markets where large quantities of sponges from Cyrenaica, Tripolitania, and Crete are found. Then in January this year, in accordance with the agreement between the Greek Government and the local sponge fishing concern (the Egyptian production being unsold), Dodecanesan Greek sponge fishers were authorized to take their catch from the port of Marsa Matrouh for sale in their homeland sponge markets, after paying to the local sponge fishing concern the amount of about \$200,000 at predevaluation rate of exchange, representing the total fees for 18 sponge-fishing permits.

MARKETING SITUATION FOR EGYPTIAN SPONGES IN GREECE: Although Egyptian sponges are well known for their fine texture as well as for their fine velvety touch and absorbing capacity, Cyrenaican sponges, especially the honeycomb type,

a,

on

which are generally of a uniform medium size, offer serious competition to the Egyptian honeycomb sponge, often called "Mandrouha" (from Marsa Matrouh) in the Greek sponge markets.

In early February 1950, at the peak of sponge buying in Greece, New York, and London markets (the principal outlets for Cyrenaican and Egyptian sponges), some purchases of Egyptian Turkey cup and honeycomb sponges were made at about \$11.70 and \$10.18 per pound, respectively.

In spite of the fact that there are ample sponge stocks on hand in the London market, British buyers, fearing the approach of another war, appeared to be still interested during March this year in purchasing additional important lots of honeycomb sponges, according to local trade sources.

It is also reputed that in early March, American sponge buyers (Americans of Dodecanesan-Greek ancestry) are trying to conclude important deals with sponge merchants at Kalymnos and Symi sponge markets (Dodecanesan islands specializing in the sponge trade) for Cyrenaican and Egyptian Turkey cup, honeycomb, and zimocca sponges.

Stocks on Hand: Stocks on hand in Egypt consist of 1,500 pounds of sponges, representing the total 1949 sponge catch made by local sponge fishers still stored at the local sponge fishing company's warehouse at Marsa Matrouh and 6,300 pounds of the 1947 production held by two local sponge merchants. The local Egyptian contessionaire is trying to sell these stocks to dealers in Greece.

Prices: Current prices quoted for the remaining stocks of sponges in the local market are based on those quoted in the central sponge market at Piraeus, Greece.

20212 2082	Mar. 1950	Mar. 1949
1st Grade:	Per Lb.	Per Lb.
Turkey cup	\$11.63	\$13.09
Honeycomb	10.18	10,18
Zimocos	5.09	7.27

Local trade sources have supplied whole—sale prices on the species (indicated on the right) and grades of Egyptian sponges for March 1949 and March 1950.

New Sponge Season: No information about arrangements for the 1950 sponge season is available. However, it is reported that the principal officer of the Egyptian sponge fishing concessionaire is in Greece negotiating a new agreement with the Dodecanesan Greek sponge fishers.



German Federal Republic

FISH CONSUMPTION: A survey was made in Western Germany between May 15 and June 15, 1949, during which 2,000 persons (mostly housewives) were questioned about their fish consumption, their tastes with regard to fish, their methods of preparing fish, and the supply conditions.

Some of the results of the survey will be of interest to United States exporters of fish, mainly canned fish.

The survey was conducted on behalf of the central administrative office for fish industry of the V.E.L.F. (Food, Agriculture, and Forest Administration), Hamburg, by the Institute for Demoscopy in Allensbach Am Bodensee. The report was issued in German and titled "Fish Consumption in Western Germany (Supply-Frices-Kind)." The excerpts abstracted here were taken from the translation made by the ECA Office of Special Representative, Paris, France.

Canned Fish: Among the top varieties of canned fish readily purchased by the Western German population, according to this survey, were sardines in oil (79 percent of those interviewed purchased sardines in oil), followed by herring in tomato sauce (61 percent), herring fillets in oil (39 percent), and herring in mustard sauce (36 percent).

Canned sardines in oil have more power of attraction than any other type of canned goods. The housewives kept on stressing the preference of their family for sardines in oil. Both country and cities represent an interested selling outlet. The consumption percentage of the upper income groups for sardines in oil was the highest met during the whole survey.

The majority of the housewives named herring in tomato sauce among the available types of canned fish which they liked to buy. On the whole, there were more people who liked herring in tomato sauce in Northern Germany than in Southern Germany, in upper and lower income groups.

Herring fillets in oil ranked before herring in mustard sauce on the preference list. As in the case of herring in tomato sauce, the number of people who refused to buy herring fillets in oil was very small.

Herring in mustard sauce were as popular as herring in tomato sauce in the Rhine Palatinate and in Baden, but in the other provinces they were by far less appreciated than herring in tomato sauce. Rejection was stronger in the country than in the city.

Interesting was the fact that housewives showed a considerable distrust for canned fish salad. The number of housewives who refused to buy fish salad was three times higher than the number who were in favor of it.

Processed Fish (Other than Canned): Kippers, grilled herring, rollmops, pickled herring, and herring in jelly led the processed fish group. Kippers were readily purchased by 78 percent, grilled herring by 56 percent, and rollmops by 52 percent.

Although fish sausage was by no means unknown to housewives, the number of people who liked it was very small. In the large cities especially, the number of housewives who refused to buy fish sausage was considerable and there was hardly one housewife who bought it readily. Rejection was particularly strong in the higher income groups.

Fresh Fish: Among the top varieties of fresh fish (except herring) readily purchased by the Western German population were haddock, cod, and salmon (58 percent, 48 percent, and 44 percent, respectively). Fresh herring was readily purchased by 61 percent and salted herring by 57 percent.

The liking for salmon was evenly distributed in the different provinces. In Schleswig-Holstein, Hamburg, Bremen and lower Saxony, salmon was more appreciated than haddock and cod. It enjoyed the same favor in country towns and in medium and big cities.

General Comments: A fundamental dislike for fish was found in only one tenth of the households. A further 20 percent of the housewives stated that one member of their family had a dislike for fish. Only 7 percent of the housewives claimed that fish was tasteless and limited their consumption accordingly.

According to their statements, the housewives contemplated increasing above all their consumption of herring, processed, and canned fish (i.e., to eat more fish at breakfast and at dinner).

In reply to the question as to what kind of fish they would rather buy, fish fillets in general were named by 14 out of 100 housewives, fresh herring by 11, all types of canned fish by 16, and canned sardines specifically by 8.

* * * * *

DEFLATION AFFECTS GERMAN FISHERIES: The general deflationary tendencies in Germany have become apparent in the fishing industry. Normally, the Lenten season is one of high fresh fish production (cod, pollock, haddock), at high price levels. In mid-March, wholesale fish prices remained near the cent-per-pound minimum despite only moderate landings. Even at this very low price, wholesale purchasers were hesitant and appreciable quantities of quality fish had to be disposed of to fish meal factories, an American consular report from Bremerhaven dated March 16 states.

German fish prices now lie below the world market level, and the domestic industry does not now fear foreign competition. The prospects for a market for Icelandic fresh fish in Germany have become much less favorable in recent weeks because of the German deflation.

It is expected that the deflation will rationalize the German fisheries by forcing the retirement of the less economic vessels and the reduction of the difference between the price to the consumer and the return to the producer.

The campaign of fishing interests to promote fish consumption is expected to end around the middle of March. The campaign, the motto of which is "Fish Once a Day," appears to have had little effect in increasing consumption.

* * * * *

SMALLER GERMAN IMPORTS OF FISHERY PRODUCTS FROM ICELAND PLANNED: Discussions regarding the trade agreement negotiations with Iceland took place in Hamburg on March 6, with specific reference to the distribution of the amount of \$2.5 million provided for Icelandic fish imports, according to a March 16 Hamburg and a March 16 Bremerhaven American consular report.

This German-Icelandic trade agreement (concluded in Frankfort on March 15, 1950) permits Icelandic trawlers to land iced fish (other than herring) at German ports during the period August 1 to November 15 up to a maximum value of \$1,600,000. No fixed quantity was agreed upon as the Icelanders will receive as payment only what their fish will bring at auction.

Germany also agreed to approve importation (on an f.o.b.-Icelandic-port basis) of a maximum of \$400,000 of salted herring, \$200,000 of frozen fish (other than herring), \$200,000 of iced herring, and \$100,000 of salted and dried herring. Iceland agreed to approve exports of herring oil and herring meal to Germany for which Germany will pay in pounds sterling.

The German-Icelandic trade agreement respects the demand of German trawler owners that foreign trawlers be allowed to land iced fish in German ports only during the German herring season.

If occasion arises for any adjustments, these will be determined at a later date. The Icelandic delegation again expressed the wish that the total amount for imports be increased to \$4.5 million, but this was refused by the Germans.

* * * *

UNITED STATES TRAWLERS IN GERMAN FISHERIES: The 12 motor trawlers purchased in 1949 by the United States Army for use in the German fisheries have been in German hands for more than 6 months and their value to the German fisheries can be assessed now on the basis of the performance data at hand, states a March 30 American consular report from Bremerhaven.



PORT OF BREMERHAVEN SHOWING FISHING VESSELS IN PORT.

Since the time of the purchase, the German food supply situation has greatly improved, and it can be said that the German domestic production of fish together with German fish imports have created an oversupply of fish.

In recent weeks, large quantities of iced fish fit for human consumption have been consigned to fish meal factories for lack of other purchasers. The number of the active German trawlers is less now than it was one year ago before the American vessels arrived; 65 of Germany's 234 trawlers are now laid up as compared with 8 out of 188 on April 1, 1949. The purchase of the 12 motor trawlers has not resulted in an increase in the number of German trawlers operating.

Hold capacity of the active fleet, however, is now somewhat more than that of one year ago as 50 of the 180 vessels in operation last year have been replaced by new vessels having more capacity, thus more than compensating for the laying up of 11 vessels without replacement.

Since January 1, 1950, six new trawlers have been completed by German ship-yards for German firms. These trawlers range in size from 400 to 644 gross registered metric tons, the median size being 540 gross registered tons. All are coal-burning steam trawlers. The American trawlers on the other hand range in size from 200 to 340 gross registered tons and are Diesel-powered. Some German firms are planning to build Diesel trawlers, but the American trawlers are of a type which no German company would build today.

The purchase price of the 12 trawlers was high by German standards. The 9 larger vessels are valued at approximately \$142,800 for insurance purposes, which valuations are high by German standards, considering the size and age of the ships. The 3 smaller ones are valued at \$119,000 and are similarly overvalued by German standards. At the time the ships were purchased, German shipyards would have been able within a period of 9 months to construct comparable new vessels for no more than 90 percent of the price paid in the United States for the used vessels. The recently constructed German trawlers of the 540-gross-ton class have cost about \$275,000. German firms early in 1950 purchased in Belgium 3 oil-burning trawlers of 475 gross registered tons in operational condition for \$175,000 each.

Up to March 1, 1950, the 12 trawlers landed fish in German ports valued at \$602,312. The expense of converting the trawlers to meet German requirements has amounted to \$221,340; the cost of transporting the vessels to Germany was \$99,960. The total burden on the vessels, apart from the purchase price, is \$321,300. From the gross return from the sale of the trawlers' catch, ll percent must be paid by the operators to the Fischdampfer Treuhand, the public corporation acting as trustee for the United States. The Fischdampfer Treuhand retains 1 percent of the proceeds for administrative expenses and pays the remaining 10 percent to the Staatliche Erfassungs-Gesellschaft, the public corporation which advanced the funds to cover the transport and conversion costs. At prevailing price levels, the 12 trawlers may be expected to land fish valued at \$71,000 per month. Thus, \$7,140 per month will be available to pay back the \$360,800 still outstanding as of March 1, 1950. The current long-term interest rate on first-class risks in Germany is 72 percent per annum. If commercial interest rates were charged by the Staatliche Erfassungs-Gesellschaft, about 42 months would be required to repay the loan; if no interest were charged, 36 months would be required. Unless prices increase, the 12 trawlers must be kept in operation for at least three more years in order to earn enough to pay back incurred Deutsche-mark costs. However, as more and more new trawlers capable of fishing in bad weather and able to remain on Icelandic fishing grounds longer than 12 days are put into operation, the 12 American trawlers will find the competition stronger. The 3 smaller trawlers, which were returned to the Fischdampfer Treuhand by the original charterers in the winter 1949-50, may have to be laid up permanently after the end of the 1950 herring season.

In short, the 12 trawlers sent to Germany under the GARIOA appropriation have been useful to date in supplying fish to an already well-supplied German market. It is problematical if the 3 smaller trawlers will be in operation long enough to repay Deutsche-mark transport and conversion costs. The earning capacity of the trawlers in Germany is too small to permit the vessels to be sold in Germany for more than 50 percent of their procurement cost.



Germany (Russian Zone)

DRIFTERS TO BE TURNED OVER TO SASSNITZ FISHERY: Of the 158 welded steel drifters to be built in the Russian Zone of Germany in 1950, around 100 will be used by the Sassnitz "peoples-own" fishery, according to a March 16 report from the American consulate at Bremerhaven. The drifters will be manned by 26-men crews and can remain at sea for 30 days.

Reconstruction of the harbor at Sassnitz (at the western end of the Baltic Sea) is proceeding. Three or four landing stages, one with Diesel bunkering facilities, are to be built this year. Under construction are concrete quays with coaling bunkers, ship and engine repair facilities, and a two-story discharging building with cold-storage rooms.



Hong Kong

FISHING INDUSTRY, 1949: Since the end of World War II, the fishing industry of Hong Kong experienced its best year, according to a March 29 American consular dispatch from Hong Kong.

In 1949, the quantity of fresh fish sold in the Government-controlled markets has quadrupled that for 1947. Early estimates place the amount at approximately 24,241,500 pounds, compared with 16,242,000 pounds in 1948 and 592,200 pounds in 1947.

The increase in fish production is attributed to good fish runs and the use of motorized junks, which are able to reach the fishing grounds and return to port without depending on the weather. Ten junks were mechanized during the year, bringing the total motorized vessels to about 50.



Iceland

EFFECTS OF ECA AID ON ICELAND'S ECONOMY: Iceland is well on the road toward readjustment of dislocations in her economy as she enters the third year of the Marshall Plan, the Economic Cooperation Administration announced on April 4.

Summarizing the progress made by Iceland in the program of expansion for the fishing industries, the Icelandic Minister of Commerce recently said: "Iceland has been undergoing rapid economic development since the end of the war. Production has exceeded, by far, prewar levels. The average annual fish production during 1935-39 amounted to 257,000 metric tons, while in 1948 it reached 409,000 metric tons; and in 1949, 337,000 metric tons. The volume of exports have also about doubled since the prewar years.

"These results have been possible due to the modernization and expansion of the fishing industry and the favorable export markets for Icelandic products all during the Forties."

The first Marshall Plan funds, a \$2,300,000 loan, were utilized for expansion of herring-processing capacity which had proved very short during the big winter herring seasons of 1946-7 and 1947-8 and for aiding the construction of the new fish meal factories. The herring-processing investment has been largely unused thus far because of subsequent failures of the catch, but research is now being undertaken into new fishing methods, since it is known that herring is still runing in abundant quantities off Icelandic coasts, but at depths too great to be caught by present fishing gear.

As further ECA dollars were made available, they assisted in maintaining essential consumer and raw material imports, such as, foodstuffs, feedstuffs and petroleum products, and enabled Iceland to devote part of her own foreign exchange receipts to continued execution of the production development program.

"Long dependent for her economic well-being on fishing, which by its very nature is an unstable industry," said the Chief of the Special ECA Mission to Iceland, "Iceland is now aiming at diversifying her economy in order to cushion the effects of periodic poor fishing seasons on her balance of payments and provide a broader base for the standard of living of her people. Increased agricultural production is one of the directions which this diversification is taking."

Despite this immense rise in production over prewar levels, Iceland has been beset with economic difficulties during its "reconstruction" period, the Minister of Commerce commented. "Market conditions have recently been deteriorating, particularly as regards fresh fish. This development has further aggravated the difficult economic situation which has mainly been caused by inflation and repeated herring failures. Consequently, in March 1950 it became necessary to devalue the Icelandic krona by over 42 percent."

The Minister is, however, optimistic about the future. "With the recent devaluation of the Icelandic currency and the determined stabilization policy of the Icelandic Government, a new start is being made for Icelandic recovery," he said. "In that connection, the Marshall Plan will in the second half undoubtedly have greater importance than before. The continued American aid will be instrumental in bringing about internal balance as well as carrying out certain long-term projects for greater diversification of the Icelandic economy."

With an eye on the dollar market, Iceland is also planning a factory to process condensed fish solubles from wasted herring residue. A market in the United States, where condensed fish solubles have begun to be used as livestock feed, is thought to exist.

* * * * *

FURTHER DEVALUATION OF THE KRONA: The International Monetary Fund has concurred in a 42.6 percent devaluation of the Icelandic krona as proposed by the Government of Iceland. The new rate of 6.14 U.S. cents per Icelandic krona became effective March 20, 1950, according to a news release from the Fund.

This is a second change in the par value of the krona following amnouncement by the Fund of an initial par value on December 18, 1946. The rate then established was 15.411 U. S. cents per krona. This par value was changed with the concurrence of the Fund on September 20, 1949, to 10.7054 U. S. cents per Icelandic krona. With the current March 20 devaluation, an aggregate decline of 60.2 percent has taken place in the value of the Icelandic krona in relation to the United States dollar.

Although it is difficult to gage, at the present time, the full effect of the devaluation, since Iceland's fisheries are an important part of that country's economy, the current devaluation no doubt will result in a decline in the prices of the fishery products which Iceland exports to the United States. On the other hand, it will mean that Iceland will have to pay higher prices for those commodities which it imports from the United States for its fisheries and for other purposes.

What Iceland hopes to accomplish with this devaluation is to increase its dollar earnings and to close up the gap between its imports and exports.

* * * * *

ICELAND RATIFIES NORTHWEST ATLANTIC FISHERIES CONVENTION: An instrument of ratification concerning the International Agreement on the Protection of Fishing Grounds in the Northwest Atlantic was signed by the President of Iceland on February 9, 1950, and forwarded to the United States Department of State in Washington, D. C.

The above announcement concerning Iceland's ratification of the Northwest Atlantic Fisheries Convention, which was signed on behalf of Iceland in Washington on February 8, 1950, appeared in the Icelandic Official Law Gazette of March 15, 1950, according to an American consular dispatch from Reykjavik.

* * * *

NEWSPAPERS CONTINUE TO STRESS EXTENSION OF TERRITORIAL WATERS: Overfishing and the employment of highly effective trawls have contributed to a gradual depletion of sea life in Icelandic waters, according to an editorial which appeared on February 21, 1950, in the Icelandic newspaper Timinm.

The Icelandic University Research Institute has statistics to prove that it requires more man-hours to effect smaller catches of fish despite the employment of modern, efficient vessels and gear, reports a March 16 American consular report from Reykjavik.

The Icelanders are inclined to believe that their claim for the extension of territorial waters (not complete sovereignty) should receive special consideration by the major Atlantic and North Atlantic fishing countries. They base their claim primarily on three factors: (1) almost complete economic dependency on the produce derived from the territorial seas, (2) law of comparative advantage, and (3) the old oriental thesis that "propinquity creates special interests and rights".

* * * *

UNITED STATES FISHERIES EXPERT TO ADVISE ICELAND'S FISHERIES INDUSTRY: A United States fisheries expert will make a two-month study of Iceland's fisheries industry to recommend more efficient methods of salting, freezing, and otherwise processing fish, and better utilization of byproducts.

The fisheries expert was scheduled to arrive in Reykjavik about April 9. ECA dollar costs in the project are estimated at \$5,600, according to an April 9 announcement by the Economic Cooperation Administration in Washington, D. C.

Indochina (French)1/

REVIEW OF THE FISHERIES, 1949: No important improvement or change took place during 1949 with regard to Indochina's fisheries, according to an American consular dispatch dated February 14 from Saigon.

Tear	Quanti ty	Value	
1991	Metric Tons	Piastres	U.S.\$
1949	2,744	14,148,000	884, 250
1948	4,976	24,734,000	1,970,800
1947	4,710	32,046,000	
Notes	Values converteding official ex	d on the basis	

Fish form an important part of the native diet, and large quantities are caught in the coastal waters, in the rivers, and in Lake Tonle Sap.

Dried fish were formerly in important export and, though now but a fraction of prewar exports, they are still important.

During 1948, the following fishery products were exported (in metric tons): fresh, salted, dried and smoked

fish-2,184; dried shrimp-808; fish oils-1,952; and other fishery products-32.

1/Transfer of administrative powers from the French Government to the three Associated States of Vietnam, Cambodia, and Laos took place early this year.

Italy



 $\frac{\text{GENEPESCA} \ \underline{\text{V}} \ \text{DOCKED} \ \text{AT LIVORNO} \ \left(\text{LEGHORN}\right), \ \text{ITALY}. \ \text{IT IS OWNED BY THE SAME FIRM THAT OWNS THE} \\ \underline{\text{GENEPESCA}} \ \underline{\text{I}} \ \text{AND} \ \underline{\text{GENEPESCA}} \ \underline{\text{IV}}.$

ITALIAN VESSELS LEAVE FOR NEWFOUNDLAND BANKS: The Italian vessels, Genepesca I and Genepesca IV, left Livorno, Italy, in February to fish for cod on the Newfoundland banks, according to Fiskets Gang of March 16.

The firm owning the vessels has previously operated trawlers in arctic waters, but never before off Newfoundland. During the war it lost nine vessels, but is now reported to be in better shape than before the war.

The two vessels are of 1,400 and 1,600 metric tons, respectively, and were built in Trieste, principally with American funds. Although one vessel is equipped with a freezer, the catch which will be taken during the 4- to 5-month trip to the Newfoundland banks will be salted.



Japan

PRICE AND DISTRIBUTION CONTROLS ON FISH LIFTED: Fish was released from price and distribution controls effective April 1, states the March 25 Weekly Summary of SCAP's Natural Resources Section.

The recovery of fish production from its low point in 1945 is a major factor affecting this important decontrol action. Fish production has progressed from a level of 1,810,000 metric tons in 1945 to a level of 3,113 metric tons in 1949. This is approximately the maximum level practicable within the existing fishing area.

Because of its significance in the Japanese diet, fish has been controlled since the war except for a two-month experimental period, December 1945 and January 1946. Prices increased sharply during that time and controls were reinstated promptly.

A general increase of food availability is indicated by the relative stability of food prices. During 1949, the total food index increased less than one percent. Staple food prices increased only seven percent, vegetables remained about the same, while meat, dairy products and fish prices actually decreased 15, 22, and six percent, respectively.

It is not expected that this decontrol action will cause any significant rise over current consumer costs.

STATUS OF FISH PROCESSING PLANTS: Fish processing plants in 11 ports in Kyoto, Hyogo, Shimane, Tottori, Yamaguchi, Hiroshima, and Osaka prefectures were inspected towards the end of last year by representatives of the Natural Resources Section of SCAP, according to the December 10 Weekly Summary issued by that Agency.

Refrigeration Plants: Generally, refrigeration plants were adequate insofar as refrigeration and minimum equipment were concerned. Some plants are very old and have difficulty in maintaining good sanitary standards. Most ports had plans for constructing new refrigeration plants or enlarging existing facilities. Processors tended to examine and evaluate their equipment with the idea in mind of replacement or reconstruction. The increase in foreign trade and the desire to equal the plants in other countries are mainly responsible for this tendency.

The major drawback to the fish-freezing industry is an imperfect knowledge of technological improvements made during the last decade.

Canners: Canneries inspected generally were in better condition than refrigeration plants. Most canneries are newer than the refrigeration plants, because since 1938 the increased importance of canned fish as an export item has led to the construction of many canneries.

Canning procedure is fairly uniform throughout Japan. An excessive amount of hand labor is used, and too little attention is paid to quality-control measures, such as, precook and quality of oils and sauces added. A rather wide range of sterilization processes was noted in the canneries visited. Retorts in only a few of them were properly equipped with recording thermometers, mercury thermometers, pressure gauges, and vents.

* * * * *

REPORTED VISIT TO JAPAN OF UNITED STATES FISHERIES GROUP: The English-lan-guage Nippon Times in its issue of April 1, 1950, published an article concerning reported plans for the visit to Japan of an American fisheries delegation. The purpose of the delegation is to carry out discussions with Japanese fisheries representatives with a view to developing "a fishing resources conservation program" to govern international fisheries in the Pacific between the United States and Japan, reports an April 5 American consular dispatch from Tokyo.

It is believed, according to the <u>Nippon</u> <u>Times</u> article, that the American mission will be composed of Department of State officials and representatives of the fishing industry who will confer with a corresponding delegation of the Japanese Government and fishing representatives. The article further states that only after a peace treaty has been signed can even a provisional international fishing agreement be concluded, but there are hopes that many points of prewar friction may be removed by the proposed discussions.



Kenya Protectorate

DEMAND FOR FISH EXCEEDS SUPPLY: Kenya could use up to 100,000 metric tons of fish a year, whereas the catch along the coast at present is only about 2,000 metric tons a year, according to the Assistant Fish Warden in charge of Kenya's Marine Fisheries. However, it is indicated that only a portion would be consumed fresh. The greater amount would be processed into stock feed, fertilizer, and dried fish for African consumption.

The tremendous difference between supply and estimated demand is due to the continual increase in Kenya's European settlement, and the rise in the African's standard of living which has made the natives important to the fishing industry as consumers. The main reason for the great deficit is considered to be the fact that primitive fishing methods are still used off the coast of Kenya, an American consular report from Mombasa dated December 16, 1949, states.

Malaya (Including Singapore)

REVIEW OF THE FISHERIES, 1949: Fisheries production is low in the Federation of Malaya and the Colony of Singapore, and retail prices exorbitantly high, according to a March 30 American consular report from Singapore.

Total production of fishery products in all of Malaya during 1949 was equal to that for 1948 when 140 million pounds were produced (119 million pounds in the Federation and 21 million pounds in Singapore).

A project for developing a research and training institute for fresh-water fish culture in Penang is being started. Salt-water fisheries are in a primitive stage with the public and the government conscious of the need for modernization, but with plans and allocations of funds indeterminate as yet.

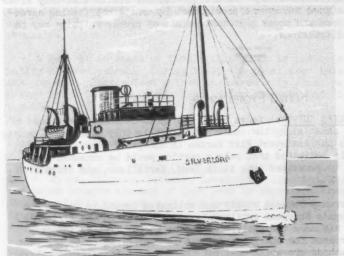
In Singapore, official interest in legislative circles has been aroused with the objective of endeavoring to develop a cooperative fish-marketing project in an attempt to reduce prices to the public.

The Colonial Development Corporation is studying a fish-cannery project for Malaya.



Colony of Mauritius

VESSEL WITH QUICK-FREEZING FACILITIES TO FISH IN INDIAN OCEAN: An ex-naval converted corvette sailed early in February from Port Louis, Mauritius, on its

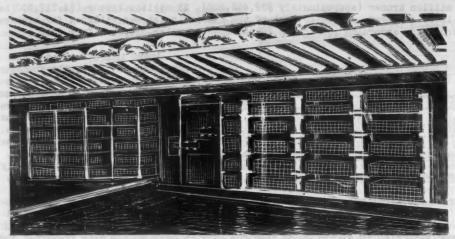


THE 1,095-TON FISHING VESSEL <u>SILVERLORD</u> ON EXPERIMENTAL VOYAGE TO INDIAN OCEAN FISHING GROUNDS. EQUIPPED TO QUICK-FREEZE FISH AT SEA.

first experimental voyage to the Indian Ocean fishing grounds, according to the February 16, 1950, issue of Modern Refrigeration, a British periodical. This 1,095ton fishing vessel, Silverlord, has been equipped with a modern quick-freezing plant and low temperature holds (with a capacity of up to 360 metric tons).

Fishing by line only, owing to the presence of extensive coral reefs, the vessel is expected to catch an average of 15 metric tons a day, of which

half will be quick-frozen in a novel type of blast freezer, operated by a simple system of revolving racks, and capable of handling approximately 1,700 pounds of fish at a time. Tiers of racks are situated on either side of a revolving insulated door, measuring 10 feet by 5 feet and pivoted in the center.



NOVEL TYPE OF BLAST FREEZER USED BY THE <u>SILVERLORD</u>. OPERATED BY A SYSTEM OF REVOLVING RACKS, AND CAPABLE OF HANDLING 1,680 POUNDS OF FISH AT A TIME.

When one side has been loaded, the door is revolved so that the tier of racks enters the freezing chamber, which is kept at a temperature of -25° F., and the racks on the other side are then exposed for reloading. An automatic cut-out shuts off the 8 h.p. fan when the door is opened. Special ducts are installed to divert the air blast to the holds for additional refrigeration, should it be required.

There is a total of 21,600 cu. ft. of refrigerated storage space, consisting of 11,000 cm. ft. between-decks and 10,600 cu. ft. in the lower hold. Insulation is provided throughout by 11 inches of glass-fibre material, except for the tank tops in the lower hold, which are of 8-inch slab cork and special deck covering, reinforced with 12-inch expanded metal.

The refrigerating machinery room, situated below the lower hold, contains three twin 7-inch "Freon" compressors, of which two are driven by 45 h.p. steam engines, and the third, through belts, from a 100 h.p. 6 LW. diesel engine, which also drives a generator. The brine and circulation pumps are electrically driven. The diesel engine would continue to operate one compressor in the event of a breakdown. Steel brine grids of $1\frac{1}{2}$ -inch bore are installed throughout the holds, maintaining a temperature of -5° F.

An additional twin $2\frac{1}{2}$ —inch compressor cools the ship's provision store, while an automatic refrigerator is installed in the galley. An ozone plant is provided for deodorization.



Norway

REVIEW OF THE FISHERIES, 1949: Production: Norway's total fisheries catch for 1949 was estimated at approximately 1,035,000 metric tons--a decrease of about 260,000 tons from the record catch of 1948. But the value to the fishermen was 295 million kroner (approximately \$59,442,500), 21 million kroner (\$4,217,500) below 1948. However, a greater part of the smaller catch was utilized for high-value products, according to a March 28 American consular dispatch from Oslo.

Year	Quantity	Va.	lue
19491/ 19481/ 1947	Metric Tons 1,035,122 1,297,215 1,031,521 1,008,800	295,000,000 315,929,000 299,537,000 257,300,000	63,660,000

Apart from cod and certain other types of fish, the abundance of fish, generally, in Norwegian coastal waters and on adjacent banks during 1949 appeared to have been about normal. Weather conditions, however, particularly in the beginning of the year, were extremely unfavorable all along the coast. This naturally influenced greatly the size of the catch during the two big seasonal fisheries that

occur in the first quarter of the year—the winter herring fisheries and the Lofoten fisheries. Also, the catch of a number of other fisheries was greatly reduced by the stormy weather during the winter and spring months. That was the case with the cod fisheries in waters other than the Lofoten grounds, the bank fisheries, and the shark fisheries.

Equipment: The supply of fishing gear and tackle was good; therefore, the rationing of such equipment was revoked as of July 1, 1949. Although great investments in fishing gear have been made during the last few years, the fishing equipment destroyed during World War II has not been completely replaced. Since the war, the importation of gear and tackle materials for their manufacture has been carried out by the Government, first through the purchasing offices and subsequently by the Directorate of Fisheries.

It is estimated that fishermen during the four years 1946 to 1949 purchased about 188 million kroner (\$37,882,000) of fishing gear, or an average of 47 million kroner (\$9,470,500) annually. In order to aid the fishermen in restoring their equipment, the Government has granted substantial subsidies for fishing gear and tackle. It has been estimated that such subsidies amounted to approximately 20 million kroner (\$4,030,000) in 1949, compared to about 18 million kroner (\$3,627,000) in 1948.

The war-years' losses and wear on fishing boats probably have been fully made good, but an analysis of fishing boats, according to size, shows that there has been a shift since prewar years towards bigger vessels.

Besides the building of new boats and conversion of old ones, a substantial investment in the fishing fleet has also been made by installing modern equipment, such as, light equipment, radio, and radio-sounding devices.

Investments in the fishing fleet have been largely financed by the Government Fishermen's Bank. At the close of September 1949, the bank's loans totaled 56.9 million kroner (\$11,465,350), only 1 million kroner (\$201,500) of which was for gear and permanent plants. This is a very large increase from 1945 when the loans, as of June 30 that year, amounted to only 8.8 million kroner (\$1,773,200).

Number of Fishermen: Apart from the cod fisheries and the sealing expeditions, in which an enumeration of fishermen and catchers has been made, estimates of the number of fishermen are based only upon surveys, and these show that participation in the fisheries was somewhat greater in 1949 than in the preceding year.

There was an increase in the number of men engaged in the fisheries in the first quarter of the year which was due to the winter herring fishery, while it is estimated that the participation in the cod fisheries during the same quarter decreased by 2,000 men as compared to the previous year. Increases in the second and third quarters were mainly due to greater participation in the cod fisheries and in the fisheries in distant waters.

Table 2 - Norwegian Manpower Engaged : the Fisheries, 1948-49, by quarters					
Quarter	Number of Men 1949 1948				
First	61,000 59,900				
Second	67,300 64,700				
Fourth	43,500 44,500				

Cod Fisheries: Government supervision was established at Lofoten on January 28, but the catch was poor during the first weeks. At the end of February conditions improved, and it appeared that the catch would about equal the 1948 level, or exceed it. But due to strong currents and unfavorable weather conditions, the concluding fisheries did not come up to expectations, and the total Lofoten catch reached only 66,700 tons as compared to 71,000 tons the preceding year. As in previous years, the major share of the 1949 yield was caught by the ordinary gear—net, line, and hand line. Best catches were obtained by those who used nets, while the fishermen using lines and hand lines had poorer results.

The Directorate of Fisheries continued tests with purse seines in the Lofoten area, fitting a number of boats with such equipment. On the whole, favorable results were obtained.

The winter cod fisheries yielded less than last year all along the coast. In Finmark, there was little fish, but in all other sections unfavorable weather was the cause of the smaller catch as compared to that of 1948. From various places along the coast it was reported that for weeks stormy weather would prevent fishermen from going to sea, except for half a day at a time, at great intervals. During the spring season it was reported that there was little fish on the fishing grounds. The winter cod fisheries yielded only 22,200 tons, the smallest catch since 1931--2,900 tons less than in 1948.

Including liver and roe, the total Norwegian catch of cod declined from 150,000 tons in 1948 to 129,500 tons in 1949, but the value only declined from 53 million kroner (\$10,679,500) to 51 million kroner (\$10,276,500) because a larger part of the 1949 catch was utilized as fresh fish.

Herring Fisheries: The winter herring fisheries of 1949 began January 13, two days earlier than in 1948, at Sviney and Flore, on the West Coast, and southwards to Solund. The herring schools went into protected fjord waters which made it possible to continue the fisheries in spite of stormy weather, which prevented fishing in the open ocean. But it made operations difficult in the narrow waters, especially for the drifters.

During these fisheries, experiments were made in using the new Danish "atom trawl" and also a bank-herring trawl. Results of these experiments were not too encouraging.

	ater Herring Fisheries Catch				
Gear	1949	1948	1947		
Purse seine Net Land seine Total	295,547 234,639 37,200	n Metric 325,500 423,708 71,052 820,260	231,384 256,959		

Winter herring fisheries production was estimated at 567,300 metric tons—a decrease of 251,100 tons from the peak year of 1948. However, considering the unfavorable fishing conditions during 1949, the result was good, and the catch was actually larger than that of any previous year except the recordyear 1948. Value to fishermen

amounted to 90.5 million kroner (\$18,235,750) in 1949, compared to 131 million kroner (\$26,396,500) in 1948. Of the total catch, 316,200 tons were "large herring" and 251,100 tons "spring herring."

The decrease in catch during 1949 especially affected production of herring oil and meal. The export of fresh herring was about the same as in 1948, while the curers of salted herring showed a little increase in their production.

			Ut	iliza	tion		
Year	Total	Fresh	Fresh-home Consumption	Sal ted	Canned	Processed (oil & meal)	Bait
1949 1948 1947	567,486 820,260 494,295	120,714 119,691 94,953	4,929 7,533 6,138	(In Me tri 125,829 118,203 103,044	13,485 17,763	294,624 539,958 263,376	7,90 17,11 9,67

Prices and Marketing: For the total cod catch, the average price paid to fishermen, including roe and liver, was about 3 2/3 cents per pound in 1949, compared to 3.2 cents per pound in 1948.

For the 1949 winter herring catch, the Government again guaranteed minimum prices, but according to a sliding scale, depending upon the size of the catch. If actual sales by the Norwegian Herring Pool bring a greater return than corresponds to the prices guaranteed and paid to fishermen, the surplus is paid into an equalization fund, which in turn may be drawn upon if deficits arise at other periods of time.

Species	1949	9 with	1947	1946	1946
DUGCIES	(in	U.S.\$	per hun	reduci	pht)
Herring Brisling Cod Coalfish (Pollock	1.33 6.03 3.66	1.44 5.99 3.20	1.68 6.40 3.56	1.42 6.40 3.29 2.83	1.61 5.21 4.02
Hyse (cod) Mackerel Halibut		4.75	2.74 4.57 5.03 17.09	4.20 6.58 16.45	4.94

Table 6 - Norwegi by Method of U			
Utilization	Finnark	Area Nordland	More
Freezing Fresh consumption Salting & drying .	4.21 3.48	per hundre 4.30 3.75 3.02	4.67 4.67 4.67 3.20

Prices to fishermen of the more important types of fish increased by some 200 percent during the war years as compared with the prewar years. However, since the war, prices have remained fairly stable (see Table 5).

Demand for fish was fairly strong throughout the year 1949. Fishermen were greatly interested in delivering their catches of cod, coalfish (pollock), and a few other species to the freezing plants as the price of fish for freezing has been considerably higher than for fish utilized in other ways (see Table 6). However, it was not possible for freezing plants to accept all the fish offered and at times difficulties arose.

NOTE: All values converted on the basis of the predevaluation rate of exchange of one Norwegian krone equals 20.15 cents U. S.

* * * * *

INTEREST IN EXPORTING FROZEN ROSEFISH FILLETS TO U.S. INCREASING: Interest in the export of frozen Norwegian rosefish or redfish (Sebastes marinus) fillets to the United States is increasing, according to the February 23 Fiskaren, a Norwegian fishery periodical. The Norwegian Minister of Fisheries is optimistic about frozen rosefish fillets as an export article, but has stated that the price of fresh rosefish must first come down to the level of cod prices if Norway is to compete. Norwegian trawlers, according to the Minister, catch large quantities of rosefish each year, which they cannot use and must discard.

Norwegian redfish are identical with, but usually larger, than the rosefish or ocean perch caught especially by the Gloucester fleet and marketed in volume as frozen ocean perch fillets.

CANNED HERRING-SARDINES DEVELOPED TO COMPETE WITH BRISLING-SARDINES: Norwegian brisling-sardines, which have been supreme in world markets because of their exceptional qualities, now will have a worthy competitor in Norwegian herring- or sild-sardines, according to a report of an engineer in the Canned Fish Industry's Quality Control Laboratory. A discovery has been made at the Canned Fish Industry's laboratory in Stavanger which improves the quality of herring.

The result of the experiments, which have been conducted with a revolutionary flavoring, mononatrium, will put the Norwegian canning industry in a position to deliver a quality canned product which will be better, it is claimed, than the Spanish or French sardines.

The research conducted has shown that unpleasant taste and odor is due to a substance in the raw material called aminooxide. When packing herring, it is necessary to remove or neutralize this substance. To accomplish this, a simple chemical operation has been found. After the oxide has been removed, a herring-or sild-sardine is obtained which ripens just like the brisling-sardine.

The canning laboratory has obtained world patents on the method.

* * * * *

GOVERNMENT TO BUILD FISH PROCESSING PLANTS: Among proposals which the Norwegian Government has put before the present session of Parliament are the formation of a company to build, own, and operate fish-processing plants in North Norway, an April 5 report from the Norwegian Information Service states.

The proposed capital for the fish-processing plants is approximately \$210,000, the State to own the majority of shares. Other shareholders will be the fishermen's organizations and the Norwegian Trade Union Council.

It is recommended that 10 plants be built, mostly for fish filleting and freezing. Six plants which the State already owns or is building may also be taken over by the new company.

* * * * *

EXPERIMENTS WITH STORAGE SILOS FOR FISH: An experimental silo is being built in Maaloy, Norway, which will test methods for preserving herring for later reduction into meal and oil, the Director of the Fishery Directorate's Chemical—Technical Research Institute in Bergen has informed the local press. The plant under construction is being built by a private firm, but with over \$42,000 of aid from the Government. Plant capacity will be about 100 tons per 24 hours. Earlier trials of preservation with chemicals have given promising results.

If the operation proves successful and raw material can be stored for an appreciable period without affecting their quality, the reduction plants will overcome processing problems and enjoy a longer and more uniform season, reports the February 16 Fiskaren, a Norwegian periodical.

* * * * 1

VACUUM PUMP FOR DISCHARGING HERRING: A Norwegian has invented a vacuum pump for discharging herring from holds of vessels. Up to the present time, only one has been constructed, a December 29 dispatch from the American Consulate at Bergen reports. This pump has been undergoing tests in Norway since shortly before Christmas with what is said to be excellent results. The inventor, S. O. Jacobsen, has turned over manufacturing and sales rights to a Norwegian firm in Oslo. The firm hopes that some 15 pumps will be ready in time for use during the coming summer's herring fishing off Iceland.

The inventor stated that his invention pumps herring a height of about 20 feet at the rate of 200,000 pounds per hour; at 16 feet, 400,000 pounds per hour; and at 10 feet, 800,000 pounds per hour.

The pump is able to pick up dry cargo, i.e., deck loads. In other words, water does not have to be added to fish cargoes to improve suction. This ability to work dry cargo is said to reduce up to 20 percent the fat value lost under ordinary unloading methods. Fish discharged through the pump does not come in contact with any moving part of the vacuum-producing mechanism and tests to date show an average of not more than two damaged herring for every 200 pounds.

The present model weighs approximately 1,800 lbs., but the inventor believes it will be possible to reduce this by one-third when the pump goes into production. The unit housing the vacuum-producing motor mechanism, discharge ports, and the automatic device computing the volume of fish discharged measures approximately one cubic yard; it can therefore be moved about quite easily. A rubber suction hose has given best results; for discharging herring such a hose must be at least eight inches in diameter.

The inventor believes his pump can produce sufficient suction to discharge any reasonably sized fish, i.e., cod. To handle large fish merely entails a larger hose. The pump can also be installed on the decks of fishing vessels for emptying nets at sea.

^{1/} See Commercial Fisheries Review, April 1950, p.74

Z-

The experimental pump now in operation is powered by a $2\frac{1}{2}$ h.p. electric motor which uses from 8 to 10 amperes at 700 r.p.m.

The Norwegian firm does not desire to manufacture the pump in Norway for export to the United States, according to reports, preferring to license American manufacturing rights to a firm in the United States. The invention has been patented in Norway and applications for patents have been filed in 17 other countries, including the United States. The trade name given in the American patent application is "silverpump."

* * * * *

FISHING INDUSTRIES TO RECEIVE ELECTRONICS INFORMATION FROM UNITED STATES:
Norway's fishing and shipping industries, which were cut off from knowledge of
wartime technical developments during the Nazi occupation, will receive information about electronics and mapping through two Marshall Plan projects announced
on March 30 in Washington and Olso by the Economic Cooperation Administration.

A five-month study of United States electronic systems is being made by a Norwegian hydrographic surveyor. During most of his study, he will be attached to the Coast and Geodetic Survey's ship Hydrographer, operating in the Gulf of Mexico.

Studies of electronic systems will be used for surveying purposes in Norway and as aids to navigation and fisheries along the coast. The Norwegian Government pointed out that fishing and shipping are two of that country's major industries and earn a large share of Norway's foreign exchange.

ECA dollar costs, including U. S. travel and subsistence, are estimated at \$2,000 for the electronics study.

* * * * *

COD FISHERY RESEARCH: The world's most modern marine research vessel G. O. Sars is at present investigating the possibilities of the Rost and Trena banks in the Lofoten vicinity where the large Norwegian cod fisheries are found. So far Norwegian trawlers have not operated on these banks, according to an April 1 release of the Norwegian Information Service.

Of particular interest to the Norwegian Marine Research Institute, which is directing the tests, is the behavior of the cod at a depth of about 200 feet. The G. O. Sars is equipped with a giant microphone, which is lowered in the ocean to find out if the cod "talks" during spawning. The vessel is also equipped with a deep-sea camera enabling filming of the cod shoals. One asdic apparatus and two echo sounders are to be used to find out how cod react to sound and light.

* * * *

NORWEGIAN-CREEK TRADE AGREEMENT: A new agreement for the exchange of goods between Norway and Greece during the period February 15 to December 31, 1950, was signed at Athens on February 15, 1950. A new payments agreement was concluded simultaneously. Norwegian exports are to include fish and fish oils, among other products. Norwegian imports from Greece do not include any fishery products, according to a March 31 American Embassy report from Oslo.

	1950		
Commodity		Second Hali	
Salted cod	105,000 1/ 105,000 98,000 154,000 560,000	154,000 70,000 70,000 35,000 28,000	

The new payments agreement proposes the establishment of an account in Norwegian kroner in Norges
Bank (Bank of Norway). Since the account established in the previous agreement was in United States dollars, this signifies a change from dollars to kroner.

Portugal

NEW VESSEL ADDED TO FISHING FLEET: Portugal added a new vessel to its cod fishing fleet in March. This motor vessel, Soto Mayor, was built in Holland, a March 17 American consular dispatch from Lisbon states. It has displacement of 1,600 metric tons, measures 216 feet in length, and has a reported capacity of approximately 2 million pounds of fish (mostly salted). Designed for line-fishing operations, the vessel has accommodations for 75 fishermen.



Somaliland Protectorate (British Somaliland)

STATUS OF THE FISHERIES: Since no permanent lakes or streams exist in the Protectorate, the only fish are those obtained from the Gulf of Aden, according to a January 2 report from the American Consulate at Aden.

The principal salt-water fish of commercial importance are the sharks, tuna, and kingfish. There is only one firm which engages in commercial fishing to any extent, and it is financed largely by local Indians and prominent Somalis. This firm cans tuna and kingfish for local consumption and export.

Other fish products of the Protectorate include shark oil, which is obtained in Zeilah on a small scale. An attempt has also been made to produce sponges in Zeilah on a small scale.

There is a privately operated fish canning industry at Elayu at the eastern end of the Protectorate coast. This appears to be establishing itself successfully and it is expected that another factory will soon be opened in the same area.

FISH CANNERY ESTABLISHED: A fish canning industry, operated by a British company, is the first recent attempt to establish a new enterprise in the Somaliland Protectorate, according to a January 5 report.

The firm is registered in the Somaliland Protectorate with a subscribed capital of approximately \$70,000\(\frac{1}{2}\), of which \$25,000\(\frac{1}{2}\) was subscribed by local Somalis. Administration of the company is carried on in Berbera and the canning factory operates at Elayu.

^{1/} Values converted on the basis of 1 British pound equals \$2.80 U.S.

sh-

ice

Size of Can	Quantity	Value 1
	No. of Cans	\$
31 oz	40,000	10-1
4 lbs	43,000	33,600

This season, owing to lack of money, the firm was very late in starting. The maximum value of fish that the factory can process is approximately \$70,000-, and during this current season as much will be produced as is possible (see Table 1).

The Firm has the equipment to construct another factory (which will cost approximately \$33,600) and the company wishes to do this at Adado where it will

process kingfish, providing the Government will give them the necessary land. The new factory, when in full production, will produce 200,000 cans of fish per season.

The company experienced some difficulty in marketing the canned fish locally. A Middle East exporter-importer of general merchandise, who offered to undertake the marketing in other countries, sent samples throughout the chain of agencies in Africa and the Middle East and results were very satisfactory.

Type of	Size	Price
Canned Fish	of Can	Per Can
Tuna Kingfish	3½ oz. 4 1bs. 1 1b.	14# U.S. \$1.68 U.S. 25# U.S.

The Ministry of Food in London has now agreed to take the entire production of kingfish after an analysis by the Ministry's Food Inspectors. It is expected that other countries will place orders when their local markets have been fully canvassed.



Spain

SPANISH SYSTEM OF DRACKET FISHING "BY PAIRS:" Dragnet fishing "by pairs" has enjoyed considerable success in Spain and seems likely to change long-established commercial fishing practices, a

Pasajes Bilbao Ondárroa Santander	250 26 38
Gijón-Avilés Coruña Vigo Marin	38 18 74 106 168 36 43

lished commercial fishing practices, a February 24 consular report from Bilbao states. The system is called fishing by "pairs" because two vessels are used to tow the fishing net or fishing gear between them. Although first introduced in Spain some forty years ago, the system has developed and improved through years.

Type of Vessels Employed: At first, low-powered, coal-burning fishing ships were used, such as those driven by 100 h.p. steam engines and, generally, these were quite small, being from 65-72 feet long. These ships carried out their fishing operations by the day, that is, they left at dawn and returned at night-

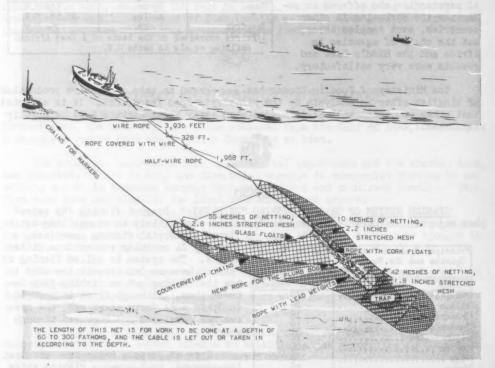
fall, dropping their nets near the coast close to the bottom of the sea where there has in the past usually been an abundance of many species of fish at a depth well suited to this type of fishing.

As intensive operations depleted the fish in the area near the Spanish coast, and in view of greatly increased national consumption of fresh fish, which has come about since the Spanish Civil War, the construction of larger ships was considered imperative and, therefore, carried out. Many improvements have been made in the construction and propulsion of the vessels used for this purpose.

At present, the ideal vessel for fishing "by pairs" (regardless of distance from the coast), is stated to be the following:

A steel ship with a keel of not less than 98 feet; a 12-foot hold beam, 20 feet; equipped with Diesel motors of not less than 350 h.p. Average gross dead weight of two of these vessels may be estimated at 350 metric tons.

Present cost of construction, according to a local shipbuilder, of one of these vessels, at the present time, may be estimated at 3 1/2 million pesetas



THIS SKETCH SHOWS THE METHOD USED IN THE SPANISH DRAG-NET SYSTEM OF FISHING BY "PAIRS" (THE TOWING OF THE NET BY TWO VESSELS). THE SYSTEM ILLUSTRATED IS FOR DRAGGING IN EUROPEAN WATERS AND IT USUALLY IS AND CAN BE MODIFIED TO MEET THE REQUIREMENTS OF THE AREA AND THE FISHERY IN WHICH IT IS USED.

(approximately \$1.0,000 U. S.1/) if all supplies and equipment for the construction could be obtained legally; since this is rarely if ever possible at the present time, the actual cost is probably 50 percent over this amount.

Location of Fishing Grunds: This type of vessel has made crossings to Iceland, Newfoundland, and elsewhere and has been highly successful, both as regards fishing and sailing. Customarily, pairs of ships from the Rilbao area of Spain operate in the regions called the Grand and Petit Sole (South and Southwest of the coast of Ireland), and also in the fishing banks that run parallel to the Atlantic French coast.

Another group of the Spanish fishing fleet of "pairs" operates along the coasts of Africa, and this year for the first time, a large number of "pairs" expect to fish the Newfoundland banks, leaving Spain in March and April, as the few vessels of this type that made this trip last year are reported to have been extremely successful.

The Fishing Net: The usage of the fishing net is the chief difference between the Spanish method of pairs and the internationally used system of trawling. With a trawler the net is towed by only one ship, while the system of "pairs" necessitates, as stated above, two ships.

Quantity and Species Caught in European Waters "By Pairs": It is difficult if not impossible to estimate the amount of the average catch made by "pairs" at the present time as so much depends on the weather, location, and luck. During and after the war years, however, when the European fishing grounds were fished by vessels of a limited number of countries, a Spanish "pair" after a 20-day cruise frequently brought back catches of 80-100 metric tons but, at present, "pairs" fishing off nearby shores only expect to bring back a minimum of 30 metric tons from a similar trip.

Among the species of fish commonly caught by "pairs" in the European waters are hake (merluccius), bream (sparidae family), sole (not the American genus achirus, but belonging to the genus solea and a valuable food fish which attains a length of two feet or more), and rouget (Helicolenus dactylopterus), as well as the red mullet (Mullus barbatus). It should be noted that an important species of fish which is commonly fished hereabouts by trawlers and not by "pairs" is the common herring (Clupea harengus).

<u>Crew</u>: Each ship of a "pair" from local ports customarily has a crew of 13, with a full complement consisting of a captain, sailing master, machinist, boat-swain, three oilers, and six sailors.

Each vessel of the "pairs" has a sailing master, one of whom is subordinate to the other. They tell the captain where to take the vessels and have entire charge of and responsibility for the fishing operations, just as the captain has for the actual sailing of the vessels. The actual handling of the fish and the nets is, of course, done by the sailors.

Terms of Work: These are governed by government regulation. Wages are composed of a fixed salary and a share in the profits. A sailor, for example, receives an average of 700 pesetas (approximately \$28 U. S.l.) a month and a bonus calculated on the value of the catch.

1/ Converted on the basis of the tourist-family assistance rate of exchange of 1 Spanish paper poseta equals 4 cents U. S.

There is a certain amount of variation between different owners but it may be stated, generally, that 14 percent of the profits of each trip is divided between the crew, of which the captain receives some 2 percent, the fishing masters 5 percent, and the balance of the crew receive the remaining 7 percent.

Since many basic items of food in Spain are strictly rationed (although they are available for a price on the black market), the more liberal rations given by the authorities to sailors may be considered an additional compensation for fishing.

"Fairs" ys. Trawlers: Although the pairs have shown themselves to be more adaptable and better able to fish under a larger variety of conditions and consequently are usually more profitable than the trawlers, the latter have always mopolized the lucrative fishing operations on the Newfoundland banks; therefore, the trawlers owners are reported to be largely dissatisfied with the forthcoming large-scale encroachment of the "pairs" into what they have considered their domain, but being fewer in numbers, their efforts to hamper this competition have hitherto been ineffectual.

Interest by Other Countries in This Development: In recent years, and particularly since the adaptation of modern propulsion machinery has so greatly increased the cruising radius of these vessels, there has been considerable interest shown in the possible acquisition of such craft by the fishing fleets of other nations. There is, however, at the present time, said to be a Canadian government emissary in Madrid who is negotiating with the Spanish government regarding fishing matters who is both interested in the possible use of "pairs" by Canadian concerns and is reported to be making some arrangements regarding the trip of the Spanish "pairs" to Newfoundland waters. There is also reported to be a concerted effort on the part of important French fishing interests, said to be supported in their efforts by the government of that country, to charter one or more "pairs" for fishing off the North African coast in place of trawlers which have hither—to been utilized there. It is understood that payment in French francs is to be made the Spanish owners (the ships in question are from the port of Pasajes) at the rate of 20 percent of the value of the vessels per year.

An owner of "pairs", who appears to enjoy a highly favorable local reputation, has on several occasions indicated his interest in initiating a similar operation with an American concern under an arrangement whereby he would furnish the ships, crew, and "know how" for a trial period of a year in return for a reasonable financial return, with the thought in mind that if at the termination of the trial period the system proved as successful as he anticipates, a mutually satisfactory agreement (either to continue on in the same way, to build such ships in the United States, or to take some alternative action) could be arrived at for a longer period of time.



Spanish Morocco

FISHING INDUSTRY, 1949: The fishing fleets of Spanish Morocco were exceedingly hard hit by the violent storms which struck the Zone last December and which resulted in heavy losses of life as well as small craft, not to mention the almost total destruction of the port of Villa Sanjurjo and severe damage to other ports. This will undoubtedly result in greatly curtailed output by the fishing industry for at least a year or two to come.

During 1949, there were 7,384 metric tons of fish caught in the Zone, valued at 13,705,000 pesetas (approximately \$1,221,800 at selling rate of the Spanish peseta of 11.22 pesetas to one U.S. dollar), and during the first nine months of the year an additional 1,393 tons were imported, states a March 18 dispatch from the American Consulate at Tangier.

Spanish Morocco's estimated consumption of fresh fish for the entire year was 9,242 tons.

During the year 1949, authorizations were granted for the establishment of seven plants for the processing of salted and dried fish.

United Kingdom



NEW TRAWL FLOAT DEVELOPED: A new trawl float, or trawl plane as it is called by the manufacturers, was recently invented and developed by a British firm, reports the February 25 issue of The Fishing News, a British periodical. The firm claims that the new trawl plane has a remarkable buoyancy, and that it gives forty pounds of lift at normal towing speed simply by transforming drag into lift.

The attachment of the float as shown in the illustration gives it room to work.

Demonstrations of this new device at various fishing ports in England have proved very successful, according to reports.

* * * 1

RESEARCH VESSEL INVESTIGATES BEST WATER TEMPERATURES FOR FISHING COD: The research vessel Ernest Holt 1 of the British Ministry of Agriculture and Fisheries has been engaged for over a year investigating the best water temperatures for fishing cod on Bear Island grounds, reports a March 21 dispatch from the American Embassy at London.

The use of thermometers in fishing operations is promising, but there are many complications, and it is not possible yet to say how to get the best results. In the meanwhile, the work of the <u>Ernest Holt</u> shows clearly that Bear Island cod is not as a rule found in large quantities in water appreciably colder than 35.6 F. There is an important exception to this rule—during the season of heavy feeding from July to September, the cod towards Sea Horse Island were frequently taken in very large quantities in water colder than 32° F. It seems as if, when actively pursuing food, such as, the capelan, the cod is not as sensitive to cold water as it is at other times.

1/ See Commercial Fisheries Review, April 1949, pp. 59-63.

International

FAO COUNCIL MEETS IN ROME: Looking toward establishment of FAO permanent headquarters in Rome sometime in the first of 1951, the 18-government Council of the Food and Agriculture Organization held its ninth session in that city beginning May 8, 1950.

Consideration of plans for the removal of headquarters to Rome, as directed by the 1949 FAO Conference, held an important place on the agenda, along with the question of the time and place of the next session of the Conference of FAO's 63 member countries.

The Council received a report on preparations for the move, including the progress of negotiations with the Italian Government, and the technical, legal, and financial implications of the transfer.

At the 1949 Conference member governments adopted the principle of biennial, rather than annual sessions of the Conference, as in the past. The Conference directed that the next session be held in April 1951 at the then-existing head-quarters of the Organization, but authorized the Director-General, with the approval or on the direction of the Council, to convene the next session in November 1950 if need arose.

On the basis of reports made to it, the Council at the Rome session, in consultation with the Director-General, was to determine when and where the next Conference will be held. In connection with the decision that regular conferences in the future shall be held on alternate years, the Director-General reported on plans for programming and budgeting on a biennial basis, and on the consequent need for amendments to the constitution, rules of procedure, and financial regulations.

The question of regional meetings with reference to the date of the next Conference was also considered.

The Council received a report from the FAO Committee on Commodity Problems, an advisory group of government representatives established by the 1949 Conference to bring producing and consuming countries together in an effort to overcome balance of payment difficulties standing in the way of the movement into consumption of surplus agricultural commodities. The Committee reported on its initial activities, its plans, and the procedures under which it proposes to work.

Among other matters considered by the Council was an application for membership in FAO received from the Hashimite Kingdom of the Jordan. (The Council couldnot pass finally on the application, since the Conference alone can admit new members to the Organization.)

Members of the FAO Council are Australia, Belgium, Brazil, Burma, Canada, Chile, Denmark, Egypt, France, India, Italy, Mexico, Pakistan, Union of South Africa, United Kingdom, United States of America, Venezuela, and Yugoslavia.

* * * * *

POLAND WITHDRAWS FROM THE FAO: Poland has announced its withdrawal from the Food and Agriculture Organization, the Department of State reported in a press

release dated April 27. Poland's action is particularly surprising because of the benefits which it has obtained from membership in the Organization. For one thing, at the request of Poland, an agricultural mission was sent to that country by the Organization in 1947. A number of the recommendations of the mission have been put into effect with beneficial results to the Polish economy. Specialists were also sent to Poland at the request of that country in 1947, 1948, and 1949.

Poland's withdrawal from the Food and Agriculture Organization follows closely its withdrawal a few weeks ago from the International Bank for Reconstruction and Development and the International Monetary Fund.

* * * * *

WORLD PRODUCTION OF MARINE OILS, 1949: All Fats and Oils: World production of all fats and oils in 1949 (up 5 percent over 1948) exceeded the prewar level of production for the first time since the end of hostilities, states a March 6 release from the Office of Foreign Agricultural Relations, U. S. Department of Agriculture.

Table 1 - Marine Oils: 1949 with				oduction,
Type of Oil	1949	1948	1947	Average 1935-39
Whale (excluding sperm)				t tons)
Total	684	622	583	1,045

In general, 1949 saw the end of the acute shortage in the world's supply of all fats and oils and the situation should improve further in 1950 when much of the 1949 production will be available for distribution.

In spite of these marked improvements, the world remains short of fats and oils, compared with the per capita level of consumption before the war, and even shorter if inadequate prewar diets for many peoples are taken into account.

Much of the increase in production since prewar has occurred in the United States and exports from the United States during 1949 made the largest single contribution to the alleviation of the world shortage. Indications are that United States exports will decline somewhat during 1950 because of the intensified shortage of dollar exchange in importing countries. This is likely to mean continued high prices in soft currency areas relative to prices in dollar areas.

Marine Oils: In 1949, world production of marine oils (whale and fish), estimated at 684,000 short tons, was up 10 percent from that of 1948 though still well below prewar (see Table 1). This increase resulted prin-

ot

Table 2 - Marine Oils:	World Expo	rts, 1950 w	ith Co	mparisons
Type of Oil	Forecast 1950	Estimate 1949	1948	Average 1935-39
Whale (excluding sperm)	385 100	1,000 sh 383 90	380 102	ns) 584 150
Total	485	475	482	734

cipally from a substantial expansion in the production of fish oil—about one-fourth greater than in 1948.

The increase of whale oil output, however, was small because the catch of baleen whales during the 1948-49 Antarctic whaling season again was limited to a maximum of 16,000 blue-whale units under the regulations of the 1946 International Whaling Convention. Whale oil production varies little from year to year because of the limit placed on the pelagic whaling catch in the Antarctic. Exports of whale oil were slightly higher in 1949, compared to 1948 (see Table 2).

World production of fish oil in 1949, estimated at 292,000 short tons, is the largest postwar output, but it still was 37 percent below the prewar average. Production in Canada (excluding Newfoundland) and the United States, the world's largest producer, probably did not exceed the 1948 output of 63,200 and 13,300 tons, respectively. Indications are that Norway, the United Kingdom, and possibly several other European countries increased their production in 1949. Newfoundland's fish oil output was considerably larger than a year earlier. Exports of fish oils were down in 1949. Shipments from Iceland, the principal exporter, were almost 75 percent less than in the preceding year.

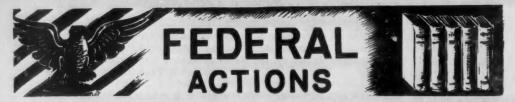


THE CODFISH INDUSTRY IN NORTHERN PORTUGAL

The codfish industry in Northern Portugal, the region extending from Figueira da Foz to the Spanish border, is not only an important industry in the region but also one of the most important industries in the country, representing a capital investment of about \$14,000,000. The history of the industry is long, and the earliest reports are undoubtedly mixtures of fact and fiction. Some even claim that Portuguese fishing vessels found America before Columbus. However, it is known that such vessels sailed from Oporto on the Douro River as early as 1497 to fish on the Grand Banks. Portuguese fishing activity has varied considerably through the years, but, regardless of this, dried codfish has constantly remained a basic item in the Portuguese diet. Northern Portugal alone with a population of about 4,000,000 consumes an average of twelve percent of the world codfish production at present levels, and even then the demand is not entirely filled.

Today Portugal is one of the foremost producers (ten percent) as well as a principal consumer (twenty percent) and importer in the world codfish market. The production side of the industry is now of particular importance: it is a great saver of foreign exchange; it is a good provider of a basic item in the national diet; and it employs directly an estimated 6,000 persons in the North excluding wholesale and retail sales people. In 1948 the North produced an estimated 21,000 tons of undried codfish valued at 130,000 contos, which was converted to 15,500 tons of dried fish valued at 147,000 contos. This constitutes over seventy-five percent of the Portuguese production. Portugal, in addition to using almost the entire production herself, as exports are negligible, imported three tons of undried cod worth 21 contos and 23,302 tons of dried cod worth 248,304 contos. (One conto equals approximately \$34.)

-Fishery Leaflet 367



Food and Drug Administration

PROPOSES TO EXTEND SEAFOOD INSPECTION SERVICE TO INCLUDE FRESH AND FROZEN SHRIMP: The Food and Drug Administration has received requests from a number of packers operating under the provisions of the so-called "Seafood Amendment" (Section 702A of the Federal Food, Drug, and Cosmetic Act) for the extension to frozen shrimp of the Seafood Inspection Service at present operative with respect to canned shrimp and canned oysters.

In response to such requests, the Agency drafted and issued on April 21 some proposed regulations. These proposed regulations provide for the inspection and certification of canned, frozen, and iced shrimp. A 12-month inspection period would be established, to begin on July 1 of the year and to end on June 30 of the following year. During such period, the inspection service would apply to all shrimp handled and packed. Labels on shrimp packed and certified under the proposed regulations may bear inspection legends. Although the total annual cost of the service remains unchanged, fees are to be payable in 12 monthly installments of \$400. Applications for shrimp inspection are to be submitted (after 1950) by May 1 preceding the inspection period, accompanied by a \$400 deposit. This deposit will constitute the first of the 12 monthly payments.

Except as otherwise provided by the proposed regulations, the fee prescribed for the inspection service shall be 35 cents per 100 pounds of frozen or fresh raw headless shrimp, 40 cents per 100 pounds of frozen or fresh raw peeled shrimp, 70 cents per 100 pounds of frozen or fresh cooked peeled shrimp, and 11 cents for each case of canned shrimp. A case of canned shrimp shall be 48 No. 8Z short cans (21x300) or the equivalent thereof. The fees for specialty products shall be calculated on the basis of the amount of cooked peeled shrimp or equivalent contained therein.

Comments and suggestions on the proposed regulations were to be submitted in writing to the Food and Drug Administration, Federal Security Building, Washington 25, D. C., by May 15, 1950. Copies of the proposed regulations are available from the same address.

To permit the Food and Drug Administration to estimate the demand for the expanded inspection service, packers who contemplated applying for this new service were requested to state their interest by letter. A statement on the anticipated size of the pack in terms of cases of canned shrimp, and of pounds of frozen or iced raw headless, raw peeled, and cooked peeled shrimp, during the 12 months beginning July 1, was requested.

If a substantial portion of the industry evidenced a desire for the expanded service, upon receipt of written comments and suggestions as to changes in the proposed regulations, the Federal Security Agency plans to then formulate the regulations in final form and promulgate them for the guidance of packers and inspectors.

Interstate Commerce Commission

RAILWAY EXPRESS' CANCELLATION OF SCHEDULES INCORPORATING INCREASE IN ICE CHARGES POSTPONED: On one day's notice from the Railway Express Agency, the Interstate Commerce Commission postponed from May 1, 1950, to June 15, 1950, the cancellation of the schedules filed by the Express Agency and incorporating increases in the ice (water ice) charges for fish and shellfish shipments. This was in connection with Investigation and Suspension Docket No. 5612, "Billing Weights on Iced Fish and Shellfish-Express," which was submitted to the Commission on February 23, 1950, and decided upon and an order released by the Commission on March 22, 1950.

The decision was rendered by a Division of the Commission (composed of three Commissioners) and the Railway Express Agency could appeal the decision to the entire Commission.



Department of State

FOURTH SESSION ON GENERAL AGREEMENT ON TARIFFS AND TRADE ENDS AT GENEVA:
The fourth session of the Contracting Parties to the General Agreement on Tariffs and Trade, which began at Geneva, Switzerland, on February 23, 1950, ended April 4 with the conclusion of a long agenda covering the routine operation of the agreement, plans for a third round of tariff negotiations beginning in September of this year, and a searching examination of the trade practices of participating governments and their effect on the general reduction of barriers to international trade, which is the basic objective of the agreement. At the session of the Contracting Parties just ended more governments were represented, as contracting parties or observers, than at any preceding session. Two governments, Indonesia and Greece, became contracting parties to the agreement during this session, bringing the total number of contracting parties to 26, an April 5 State Department release stated.

The session just ended decided upon Torquay, England, as the site for the third round of tariff negotiations, to begin September 28 of this year. Certain fishery products are included. These negotiations will proceed among the present contracting parties as well as with newly acceding governments. In setting the stage for the forthcoming third round of tariff negotiations, the contracting parties took pains to insure that the third round should not be used as a medium for raising tariffs, even though the technical right exists for each contracting party to adjust individual rates after January 1, 1951. They also reaffirmed the negotiating rule followed at previous negotiations to the effect that the binding of a low rate of duty should be considered equivalent to the reduction of a high rate.

Among the most important work of the fourth session was an examination of the present operation of import and export controls of participating countries in order to assure that the basic obligations of the agreement are being complied with and to find means of hastening the end of post-war restrictive measures and the earlier achievement of the trade objectives of the agreement. In this connection, the Contracting Parties examined certain types of export and import restrictions which are being imposed for the purpose of protecting domestic industry or promoting exports.

In the field of import restrictions, it was recognized that even where such restrictions are imposed for balance-of-payments reasons, there could be an incidental protective effect which was not intended at the time they were imposed. The countries agreed that every effort should be made to minimize this protective effect to facilitate the removal of these restrictions as rapidly as balance-of-payments conditions permit. Member countries were urged to avoid encouragement of investment in enterprises which could not survive without protection when the balance-of-payments reasons for such protection have disappeared. They were urged to take every opportunity to impress upon producers who are protected by such restrictions the fact that these restrictions are not permanent. Countries were asked to administer such restrictions as are necessary on a flexible basis and to adjust them to changing circumstances. There was agreement that where quotas are necessary these should preferably be non-bilateral and should apply without discrimination to as many countries as possible.

Several specific types of misuse of import restrictions were cited as inconsistent with the General Agreement. Among these was the maintenance by a country of balance-of-payments restrictions which gave priority to imports of particular products on the basis of the competitiveness or non-competitiveness of such imports with a domestic industry. Another type of misuse is the imposition by a country of administrative obstacles to the full utilization of import quotas in order to afford protection to a domestic industry.

The Contracting Parties agreed in conclusion that each country should review its present system of quantitative import and export restrictions in the light of the discussions carried on during this meeting and of the conclusions reached. They also recommended to each country that every effort be made to acquaint those officials responsible for the administration of quantitative restrictions or the negotiation of trade agreements with the conclusions reached at this meeting and with the specific provisions of the General Agreement, in order that such types of restrictions as are not consistent with these conclusions or these provisions may be eliminated.

At the close of the conference the delegate of the United States made a brief statement to the effect that the United States still considered it important that the Contracting Parties devise a method of extending most-favored-nation treatment to Japan on a reciprocal basis and that the United States may raise this issue during the next session of the Contracting Parties at Torquay.

* * * * *

INDO-PACIFIC FISHERIES COUNCIL MEETS AND UNITED STATES DELEGATES DESIGNATED: Two members of the Fish and Wildlife Service's Pacific Oceanic Fishery Investigations were designated by the United States Department of State on March 14 as delegates to the Second Meeting of the Indo-Pacific Fisheries Council which convened at Uronulla, Australia, on April 17, 1950. O. E. Sette, Director of POFI, has been designated as delegate, and Charles Butler, Chief of POFI's Technological Section, as alternate delegate. Both were United States delegates at the first meeting of the Council in Singapore.

The meeting dealt primarily with biological and technological fishery matters.

The inaugural meeting of the FAO Indo-Pacific Fisheries Council was held in Singapore on March 24, 1949. This Council came into being on November 9, 1948, when the fifth acceptance by a member country was received at FAO headquarters by

the Director-General. The agreement to establish the Council was formulated at a meeting called by FAO at Baguic, Philippines, in February 1948.

So far the following fourteen countries have accepted the agreement for the establishment of the Council:

AUSTRALIA	FRANCE	NETHERLANDS	1	THAILAND		
BURMA	INDIA	PAKISTAN	1	UNITED KINGDOM		
CEYLON	INDONESIA	PHILIPPINES	1	UNITED STATES OF AMERICA		
CHINA	KOREA					

The Indo-Pacific Fishery Council was the first established of a series of such regional fisheries councils which FAO is initiating to encourage governments to work together to develop further the production and more effective utilization of fisheries products, aiming toward improved nutritional levels for the peoples of each area.



Eighty-first Congress (Second Session)

APRIL 1950

Listed below are public bills, resolutions, etc., introduced and referred to committees, or passed by the Eighty-First Congress (Second Session) and signed by the President during March 1950, which affect in any way the fisheries and fishing and allied industries. Public bills, resolutions, etc., are mentioned under this section only when introduced and, if passed, when they are signed by the President.

PUBLIC BILLS AND RESOLUTIONS INTRODUCED AND REFERRED TO COMMITTEES:

House of Representatives:

- H. R. 8023 (Ford) A bill to amend chapter 61 (relating to lotteries) of title 18, United States Code, to make clear that such chapter does not apply to certain contests to advertise or develop the natural or recreational resources of a State or any region or section thereof; to the Committee on the Judiciary.
- H. R. 8297 (Wicholson) A bill for the safety of life and property by making all commercial fishing vessels subject to the rules and regulations of the United States Coast Guard marine inspection; to the Committee on Merchant Marine and Fisheries.
- H. Res. 558 (Thompson) Resolution requesting the Secretary of State to investigate the seizure of five fishing vessels of the United States by the Republic of Mexico; to the Committee on Merchant Marine and Fisheries.
- H. Res. 559 (Bentsen) Same as H. Res. 558.
- H. Res. 560 (Lyle) Same as H. Res. 558.
- H. Res. 561 (Combs) Same as H. Res. 558.
- H. Res. 564 (Rogers) Resolution creating a select committee to attend the Third Round of Tariff Negotiations under the General Agreement on Tariffs and Trade; to the Committee on Rules,

The following bills introduced prior to April 1, 1950, were not previously shown under this section:

House of Representatives:

- H. R. 7462 (Bosone) A bill to reestablish a Civilian Conservation Corps; to provide for the conservation of natural resources and the development of human resources through the employment of youthful citizens in the performance of useful work, including job training and instruction in good-work habits; and for other purposes; to the Committee on Education and Labor.
- H. R. 7575 (Nelson) A bill to amend chapter 61 (relating to lotteries) of title 18, United States Code, to make clear that such chapter does not apply to certain contests to advertise or develop the natural or recreational resources of a State or any region or section thereof; to the Committee on the Judiciary.
- H. R. 7619 (Mack) Same as H. R. 7575; to the Committee on the Judiciary:
- H. R. 7621 (Tollefson) Same as H.R. 7575; to the Committee on the Judiciary.
- H. R. 7721 (Wier) Same as H. R. 7462; to the Committee on Public Lands.
- H. B. 7952 (Andresen) A bill to extend until July 1, 1952, import-control powers with respect to fats and oils and rice and rice products; to the Committee on Banking and Currency.

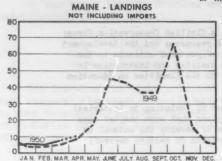
Senate:

- S. 2786 (0°Conor and Magnuson) A bill to amend the Merchant Marine Act, 1936, as amended, to further promote the development and maintenance of the American merchant marine, and for other purposes; to the Committee on Interstate and Foreign Commerce. (This bill refers to the fishery industries insofar as it changes Section 511 (d) of the Merchant Marine Act of 1936 permitting a tax-free reserve fund for construction, reconstruction, reconditioning or acquisition of fishing vessels.)
- S. 3144 (Murray, Thomas, Pepper, Green, Kilgore, Taylor, Humphrey, Neely, and Lehman) A bill to reestablish a Civilian Conservation Corps; to provide for the conservation of natural resources and the development of human resources through the employment of youthful citizens in the performance of useful work, including job training and instruction in good-work habits; and for other purposes; to the Committee on Labor and Public Welfare.

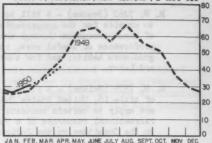


LANDINGS AND RECEIPTS

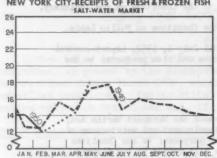
In Millions of Pounds



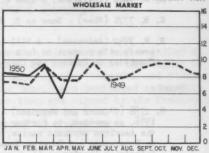
MASSACHUSETTS - LANDINGS BOSTON , GLOUCESTER , NEW BEDFORD , & CAPE COD



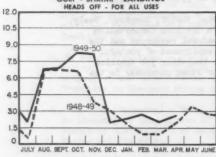
NEW YORK CITY-RECEIPTS OF FRESH & FROZEN FISH

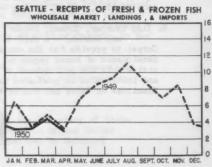


CHICAGO - RECEIPTS OF FRESH & FROZEN FISH WHOLESALE MARKET

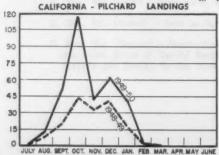


GULF - SHRIMP LANDINGS HEADS OFF - FOR ALL USES

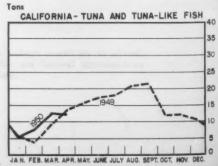




CALIFORNIA - PILCHARD LANDINGS



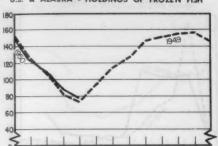
Thousands of



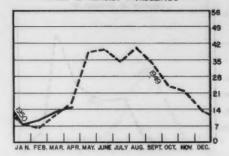
***** ESTIMATED

COLD STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS

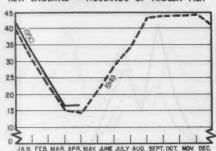




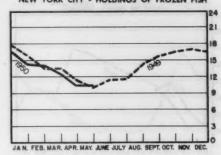
In Millions of Pounds U.S. & ALASKA - FREEZINGS



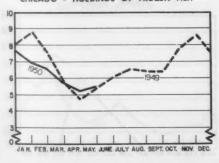
NEW ENGLAND - HOLDINGS OF FROZEN FISH



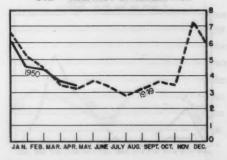
NEW YORK CITY - HOLDINGS OF FROZEN FISH



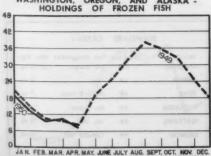
CHICAGO - HOLDINGS OF FROZEN FISH



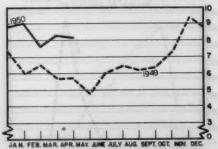
GULF - HOLDINGS OF FROZEN FISH



WASHINGTON, OREGON, AND ALASKA -HOLDINGS OF FROZEN FISH



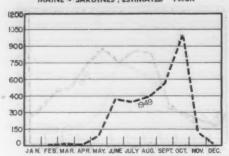
CALIFORNIA - HOLDINGS OF FROZEN FISH

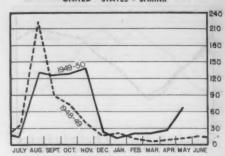


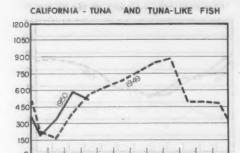
273UGOST YARRICANNED FISHERY PRODUCTS

In Thousands of Standard Cases

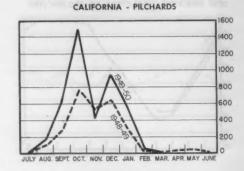
MAINE - SARDINES , ESTIMATED PACK UNITED STATES - SHRIMP

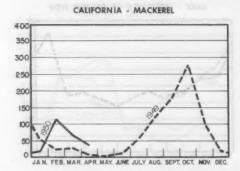


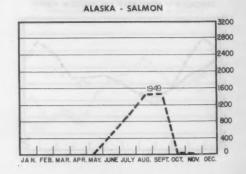


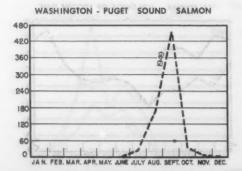


JAN. FEB. MAR. APR. MAY. JUNE JULY AUG. SEPT. OCT. NOV. DEC.



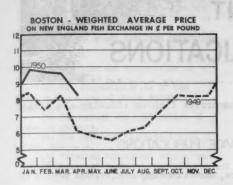


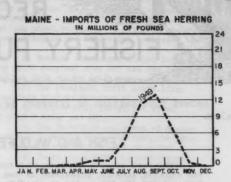


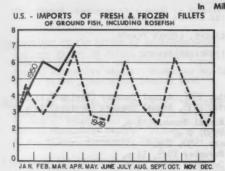


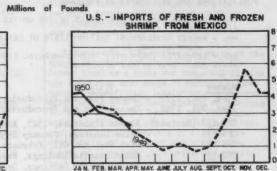
	STANDARD	CASES		
Variety	No. Cans	Can Designation	Net. Wgt	
SARDINES	100	1/4 drawn	3 1/4 ox.	
SHRIMP	48	-	5 ez	
TUNA	48	No. 1/2 tune	7 ex	
PILCHARDS	48	No. 1 oval	15 02	
MACKEREL	48	No. 300	15 es	
SALMON	48	1-pound tell	16 ex	

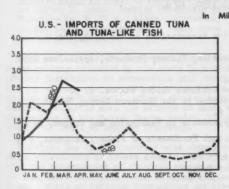
PRICES, IMPORTS and BY-PRODUCTS

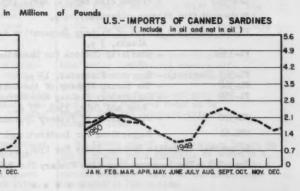


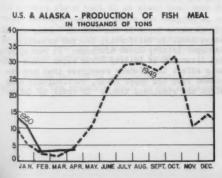


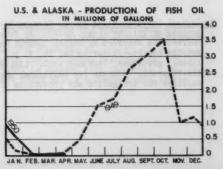














Recent publications of interest to the commercial fishing industry are listed below.

FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.

FL - FISHERY LEAFLETS.

MDL - MARKET DEVELOPMENT SECTION LISTS OF DEALERS, LOCKER PLANTS,

ASSOCIATIONS, ETC.
SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

STAT. BUL. - STATISTICAL BULLETINS.

Stat. Bul. 1299 - Canned Fish and Byproducts, 1936, Annual Summary (Revised), 11 p. Stat. Bul. 1344 - Canned Fish and Byproducts, 1938, Annual Summery (Revised), 12 p. CFS-438 (Revised)- Alaska Fisheries, 1947, Annual Summary, 6 p. CFS-530 - Maine Landings, January 1950, 4 p. - Fish Meal and Oil, February 1950, 2 p.
- Massachusetts Landings, November 1949, 14 p.
- Massachusetts Landings, December 1949, 14 p. CFS-532 CFS-535 CFS-537 CFS-538 - Frozen Fish Report, April 1950, 10 p.

Fishery Motion Pictures (Revised), 5 p.

FL-292 (Revised) - List of Fishery Cooperative Associations in the U. S. and Alaska, 3 p.

FL-336d - Quarterly Outlook for Marketing Fishery Products. April-June 1950. 45 P.

FL-363 (Revised) - Egyptian Fisheries, 13 p.

FL-368 - The Shrimp Fishery of the Southern United States, 17 p. FL-369 - Exploratory Fishing Expedition to the Northern Bering Sea in

June and July, 1949, 57 p.

- Utilization of Fishery Byproducts in Washington and Oregon, 24 p. FL-370

MDL-61 - Suggestions for Institutional Purchasers of Fishery Products. 4 p.

Commercial Fisheries Review-Index For 1946, 20 p.

Sep. 249 - The Japanese Long-Line Fishery for Tunas

Biological Investigations of the Fishery Hesources of Trinity River, Calif., by James W. Moffett and Stanford H. Smith, Special Scientific Report -- Fisheries No. 12, 71 p., illus., processed, February 1950. Limited distribution. Demands for additional water supplies for irrigation and production of

hydroelectric power in the Central Valley and adjacent areas in California, focused attention on the upper Trinity River drainage. It was apparent that diversion of Trinity River water would seriously affect the fishery resources that are dependent upon the upper river, particularly king salmon and steelhead trout. In order to determine the magnitude and biological cheracteristics of these resources and to design management plans and procedures for their protection, the U. S. Fish and Wildlife Service conducted a comprehensive survey and study of the entire problem. Major features of the study involved determination of:

(1) The size and composition of

fish population.

(2) The characteristics of the seaward migration of young salmon and steelhead trout.

(3) The extent and utilization of

spawning gravels.
(4) The physical characteristics of the drainage.

(5) Existing biological conditions.
(6) Possible means of controlling the fishery and its environmental factors.

This report discusses this study in detail.

Observations of the Effect of Acid-Iron Waste
Disposal at Sea on Animal Populations, by
Edgar L. Arnold, Jr. and William F. Royce,
Special Scientific Report: Fisheries No. 11,
12 p., illus., processed, January 1950.

Drift Bottle Releases Off New Jersey -- A Preliminary Report on Experiments Begun in 1948, by John R. Webster and Raymond J. Buller, Special Scientific Report: Fisheries No. 10, 21 p., 11us., processed, January 1950.

A Survey of the Sports Fishery of the Middle
Atlantic Bight in 1948, by Raymond J. Buller
and Harlan S. Spear, Special Scientific Report:
Fisheries No. 7, 20 p., illus., processed,
Jamuary 1950. (Distribution of these three
reports is limited.)

These are three of four reports on a series of investigations conducted by the Woods Hole Oceanographic Institution in cooperation with the U. S. Fish and Wildlife Service and sponsored by the National Research Council. These studies have been concerned primarily with the effects of waste disposal at sea in the Hudson Canyon region, 11 miles south (170° True) of Ambrose Lightship.

Fisheries No. 11 is concerned with observations on the populations of bottom animals before and after the commencement of disposal operations in the area where acid-from weste is being disposed at sea. While no definite conclusions are given, the authors state that it is clear that even directly beneath the area where the dumping of acid solution has been going on for seven months, there has been no eradication of bottom organisms. It is apparent that, in the area, fish in considerable variety and numbers were to be found.

ıd-

n

ent

1-

Fisheries No. 10 is concerned with investigations on the possible drift of the waste-products.

Drift bottles released by the vessels Balanus, Caryn, and Albatross III (the latter a Fish and Wildlife Service research vessel) were used as indicators. These bottles approximate the action of flotsam responsible to prevailing ocean currents. A detailed study of these releases and recoveries indicated that:

(1) Buoyant substances dumped into the waste disposal area off the New Jersey and New York coasts drift away.

(2) The resultant drift prevailing from July through November of 1948 was south to southwest at probably a speed of 2 to 9 miles per day.

(3) The direction and speed of transport was primarily dependent upon the prevailing currents rather than on winds.

(4) There was a critical north-south line between 10 and 17 miles off the New Jersey coast--bottles released west of this line reached New Jersey within a few days; bottles released east of this line reached New Jersey only after two weeks, if at all.

Fisheries No. 7 describes the value of the sports fisheries off the New York and New Jersey coast as a basis for comparing it with the industries with which it conflicts; presents data on fishing localities and seasons which can be used to decide means of reducing the area of conflict between the fisheries and the pollutants; and brings together factual data on the abundance of fish in the catch which will supplent the conflicting claims of fishermen. Discusses the charterboat and party-boat fisheries, describing the boats, numbers, and locations of the boats, fishing methods, species taken, the fishing grounds, and the 1948 seasons and catch. In summarizing the data, the authors state that limited comparisons show:

 The catch-per-year-trip of tune during 1948 was not greatly different from the catch-per-trip in 1938 and 1941.

(2) The 1948 catch-per-trip of scup and sea bass was found to be greater than the catch-per-trip recorded in 1938.

The fourth report, A Preliminary Report on the Acid-Iron Waste Disposal, by Bostwick H. Ketchum and William L. Ford, was issued as a special processed report of the Woods Hole Oceanographic Institution.

The 1950 Opening of the Bonnet Carre Spillway Its Effect on Oysters, Special Scientific
Report: Fisheries No. 14, 10 p., processed,
March 1950. Limited Distribution. This
report is divided into two parts. The first
part deals with a summary report of the

Mississippi Sound surveys conducted to determine the effects of the Bonnet Carre Spillway opening during February-March 1950. The second part discusses the observations in cyster-producing areas in Louisiana affected by the opening of the Bonnet Carre Spillway during February 1950. The latter reports also on conditions at the Spillway, in Lake Pontchartrain, and in Western Mississippi Sound.

* * * * 1

THE FOLLOWING SERVICE PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED IN THE REVIEW.

California Fisheries, 1949, 31 p., processed, April 1950. (Available free from the Market News Service, U. S. Fish and Wild-life Service, Post Office Building, San Pedro, Calif.) In addition to a review of California fisheries trends for 1949, this publication contains statistical data by months on California's 1949 landings and products of sardines; receipts and pack of mackerel and jack mackerel; receipts and pack of tuna; freezings and cold storage holdings of fishery products; and livers sold at auction in San Francisco. Also included are landings of fishery products by species and by months at Eureka, San Pedro-Santa Monica, Newport Beach, and San Diego; and imports of fishery products into Arizona and California.

Landings and Prices of Fishery Products, Boston
Fish Pier, 1949, 20 p., processed, April
1950. (Available free from the Market News
Service, U. S. Fish and Wildlife Service,
10 Commonwealth Pier, Boston, Mass.) This
publication contains a review of the fish
marketing trends and conditions in Boston
for 1949. It also has detailed data on
landings and weighted average prices of
the fish and shellfish landed at the Boston
Fish Pier during 1949. Statistics are given
by months and by species, together with comparative data for previous years.

Receipts of Fresh & Frozen Fishery Products at Chicago - 1949. 57 p., processed, April 1950. (Available free from the Market News Service, U. S. Fish and Wildlife Service, 200 North

Jefferson St., Chicago 6, Ill.) In addition to a review of the receipts of fishery products at Chicago and trends for 1949, this publication contains data on arrivals of fishery products at Chicago by species by states and provinces; states and provinces by species; species by months; states and provinces by species; totals by species; totals by states and provinces; and a monthly range of wholesale prices of some of the leading varieties handled on the Chicago Market. Also included is a table giving the names, classifications, and approximate weights of certain fishery products as used in the Chicago Wholesale Market. The data is also tabulated by method of transportation (truck, express and freight).

Summary of Alaskan Salmon Escapements, 1949, 3 p., processed, 1950, free. Copies available from the Branch of Alaska Fisheries, Fish and Wildlife Service, Washington 25, D. C. This is the first of a series of salmon escapement reports which are planned for distribution annually hereafter to persons interested in the Alaskan fisheries. It contains a summarization of Alaskan salmon escapements for 1949 based on an analysis of reports by 10 agents performing fishery management functions and from information contributed by other Service personnel and cooperators, including representatives of fishermen and operators. One- and two-word adjective descriptions have been applied to the evaluation of District escapements.

* * * * *

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

Biology of the Atlantic Mackerel (Scomber scombrus) of North America, Part II-Migrations and Habits, by Oscar Elton Sette, Fishery Bulletin 49, pp. 251-358, illus, printed, 1950. (For sale by the Superintendent of Documents, Washington 25, D. C., at 25 cents each). This report is one of several resulting from the mackerel investigations conducted by the United States Bu-

reau of Fisheries (now the Fish and Wildlife Service) from 1925 to 1935. The work involved not only studies of the fluctuations, but also of the many phases of life history and habits of the mackerel. In this report have been collected the facts that pertain to habits and migrations, particularly those that are pertinent to the understanding of changes in abundance. The major conclusions of this

The

Mis-

lso

ts

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

report rest on the size composition of the mackerel population as determined from measurements of individual fish in thousands of samples drawn from the commercial catch at the principal ports of landing. During the 10-year period (1926 to 1935), the program was carried out consistently so that data are comparable, and the present report is confined to this period, except for the inclusion of certain data from tagging initiated in 1925. The mackerel, Scomber scombrus Linnaeus, in the western Atlantic ranges from Labrador to North Carolina and is caught in commercial quantities from the southern Gulf of St. Lawrence to Virginia. During the fishing season, it is most abundant in the waters over the inner third or half of the continental shelf. The smaller and younger sizes are usually closer to the shore line than the adults. The mackerel appears in April near the southerly end of its range and by July extends from southern New England to the Gaspe coast. In September it begins to disappear from the northerly regions and by December has left all the usual mackerel fishing grounds. The mackerel has a pronounced schooling habit dependent on vision and hence is subject to variations with the diurnal cycle of light intensity, with luminescence a factor at night, especially in spring and fall. Schooling tends to be according to sizes probably owing to a correlation between size and swimming ability which in turn probably depends on the ratio of volume to surface which in-creases with size of body. During spring, summer, and fall, mackerel are confined to the warm layer of water above the thermocline which lies about 15-20 meters deep inshore to 40-50 meters deep offshore, and variations in availabilty of schools to fishermen is dependent partly on the variable depth of the thermocline. Plankton is the principal food and is so much more abundant during spring and summer that the fat content of mackerel increases rapidly from April to August. The existence of two contingents and the course of their migrations as deduced from size composition were corroborated in many details by a series of tagging experiments. The first number of this series of reports (Sette 1939) was on the early life history with special reference to mortality; others will be on age and rate of growth and on fluctuations in abundance.

Fishery Statistics of the United States, 1946, by A. W. Anderson and E. A. Power, Statistical Digest No. 19, 265 p.; illus., printed, (For sale by the Superintendent of Documents, Washington, D. C., at \$1.00 per copy). This is a review of the fishery statistics of the United States and Alaska for the year 1946. It includes data on the quantity and value of the catch of fishery products, employment in the fisheries, quantity of gear

operated, the number of fishing craft employed in the capture of fishery products, and certain information on the quantity and value of the production of manufactured fishery products and byproducts and foreign trade. Detailed data are included by area and by states. Surveys covering the catch of fish and shellfish for the year 1946 were made in all areas except New Hampshire, New Jersey, Delaware, the South Atlantic and Gulf States, and the Mississippi River, and (except for the latter) detailed data by States are included in the report. The publication contains a general review, sectional summaries and statistics by states, supplementary surveys, Hawaiian fisheries data (for the first time), and a review of certain major fisheries (cod, haddock, halibut, mackerel, menhaden, pilchard, rosefish, salmon, and tuna fisheries). An explanation of the statistical survey procedure as well as a glossary of names of fishery products, and illustrations of some 130 species of fish and 24 species of shellfish and other fishery products are also included.

Commercial Fisheries of Alaska, 1950,
Regulatory Announcement 28, 62 p., printed.
(For sale by the Superintendent of Documents, Washington 25, D. C. at 20 cents.)
This publication is divided into two sections. One section contains all the regulations for the protection of the commercial fisheries of Alaska mended to date and which became effective April 8, 1950.
The second section contains laws for the protection of the commercial fisheries of Alaska and related information, including the authority for regulation, rules regarding cyster culture, Bristol Bay residence requirements, regulation of salmon escapement, fishing gear restrictions, exceptions to weekly closed seasons, etc. These regulations supersede the regulations published in Regulatory Amouncement 25, as amended, and effective March 28, 1949.

Shark Fishing Potentialities of the Philippine

Seas, by Herbert E. Warfel and John A.
Clague, Research Report 15, 19 p., printed,
1950. (For sale at 15 cents by the Superintendent of Documents, Washington 25, D.C.).

Explorations and investigations to determine
the potential value of sharks from the Philiippine Seas were carried out by the Philippine Fishery Program in 1948. Exploratory
fishing was done with long line and gill net
in selected localities from Luzon Island to
the Sulu Archipelago. The bulk of the catch
by long line consisted of the tiger shark
(Galeocerdo arcticus Fowler). This species
was taken under a wide variety of conditions
both as to habitat and fishing effort and
seems to be widely distributed in the Philippines. No tiger sharks were taken in the
few trials made by gill net. The liver of

G. arcticus proved to be low in vitamin A content but the shark has a moderate potential value if used for food provided the hide, oil, and other byproducts can be marketed. Specimens of three other species that were analyzed for vitamin A showed some promise but none of the three was encountered in sufficient quantity to warrant the establishment of a large-scale fishery. It is

recommended by the authors, however, that a shark fishery be established on a home or community basis in order to utilize more fully the available marine resources. This publication describes the regions explored, the geer, operational factors, production results, vitamin A and oil content of livers, and shark byproduct possibilities.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

- "America's Oldest Industry Faces Crisis (The New England Fishing Industry)," by Donald J. white, article, Monthly Review, March 1950, vol. 32, no. 3, pp. 1-12, illus., printed. Federal Reserve Bank of Boston, Boston, Mass. The outlook for New England's leading fishing ports is discussed in this article. It describes the fishing grounds, species produced, and the methods used in catching the The ports of Boston, Gloucester, New Bedford, and Portland are treated individ-In describing the problems of the ually. New England fishing industry, the author discusses the decline in fish population, marketing difficulties, foreign competition, and internal conflict. A constructive program for the industry is presented and includes cooperation among all groups in the industry, certain suggestions for solving the fish-scarcity problem, ways of expanding the consumer market, how to meet foreign competition, and recommendations for State and Federal aid.
- Annual Report of the Secretary of the Interior (Fiscal Year Ended June 30, 1949), 407 p., printed, indexed, 75 cents. U. S. Department of the Interior, Washington, D. C. (For sale by the Superintendent of Documents, Washington, D. C.) Contains the annual reports of the various agencies of the Department of the Interior, including the Fish and Wildlife Service. This latter report disdiscusses maintaining the inland fisheries, salmon conservation in the United States, marine fishery research, utilization of fishery resources, administration of Alaska fisheries, cooperation with American Republics, rehabilitation of philippine fisheries, whaling, and river basin development, in addition to various wildlife projects.
- "The British Columbia Herring Fishery," article, Trade News, March 1950, vol. 2, no 9, pp. 9-11, illus, processed. Department of Fisheries, Ottawa, Canada. Discusses the British Columbia herring fishery, giving data for the 1949-50 season together with comparative information and some of the history of this fishery.

- Button and Other Mother-of-Pearl Shell Manufactures: Portugal, World Trade in Commodities—Supplement, Special Products, vol. VII, part 18, sup. no. 5, December 1949, 9 p., processed, 5 cents. U. S. Department of Commerce, Washington, D. C. A report on Portugal's button industry whose output depends on the importations of mother-of-pearl shell. In 1948, more than 90 percent of the mother-of-pearl shell imports were from the United States. Discusses production of buttons of mother-of-pearl shell, consumption of buttons, imports of buttons and other mother-of-pearl articles, exports of buttons, import duties and regulations, channels of distribution, and prices. Contains a number of tables giving detailed data on some of the above.
- The Commercial Shrimp Industry of Florida, by Clarence P. Idyll, Educational Series No. 6, 32 p., illus., printed. Marine Laboratory, University of Miami, Florida Board of Conservation, Coral Gables 34, Florida. Summarizes the available data on the shrimp industry of Florida. This publication discusses and describes the different kinds of commercial shrimp, the growth and breeding of shrimp, where and how they are caught, the value of the industry, suggestions for exploratory shrimp fishing, regulation of the shrimp fishery, and what the State of Florida is doing for the shrimp industry. A bibliography is included.
- Comprehensive Export Schedule, 173 p., printed, \$6.00 in U. S., \$7.50 foreign (Price includes "Current Export Bulletins" issued for insertion in basic book). Office of International Trade, U. S. Department of Commerce, Washington 25, D. C., March 30, 1950. (For sale by Superintendent of Documents, Washington, 25 D. C., or by any field office of the U. S. Department of Commerce.) This new edition of the export publication contains:
 - (1) All current export regulations, including the recently-revised destination

ully

e

6,

đ,

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE AGENCIES ISSUING THEM.

controls on commodities.

(2) An up-to-date "Positive List," showing all commodities for which a validated export license is required for any destination.

(3) Specimen export control forms and other explanatory material designed to aid exporters in applying the regulations to individual cases. Published in loose-leaf format to allow for the insertion of the "Current Export Bulletins," which will be issued to supplement and revise this book.

The Credit Outlook for Latin America in 1950, by Douglas Henderson, 16 p., processed, free. U. S. Department of Commerce, Washington 25, D. C., or its field offices. Discusses the factors important to the credit outlook of Latin America, and analyzes conditions in each of the following countries: Cuba, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Mexico, Peru, Venezuela, Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Nicaragua, Paraguay, and Uruguay. May be of interest to exporters of fishery products to Latin America. United States companies and individuals who plan to extend credit to Latin American importers should find generally favorable conditions in most countries of the area, according to the author.

The Experiments on the Cornish Pilchard

Fishery in 1947-8, by William C. Hodgson,
and Ian D. Richardson, Fishery Investigations, Series II, vol. XVII, no. 2, 21 p., illus., approx. 30 cents. Ministry of Agriculture and Fisheries, London, England, 1949. (For sale by His Majesty's Stationery Office, London, England.) This report describes a three-week investigation in the Cornish pilchard fishery, mainly with the fishery centered around Mevagissey. The aim of this experiment was primarily to establish whether or not the landings of pilchards could be increased so that the canning factories could receive adequate supplies of fish to enable them to supply the local canned fish market, since the imports of canned pilchards from Califormia have been curtailed. The Cornish pilchard fishery is mainly exploited by small vessels using drift nets. It appeared that the introduction of the Scottish ring net into the Cornish fishery might bring about an increase in the yield of the fishery. The Ministry's vessels M. V. Onaway and the M. V. Hope and a privatelyowned Scottish ring-netter hired for the experiment, were sent to Mevagissey in November 1947 to carry out the investigation. This publication describes the ringnet method; the location of pilchards by echo-sounder; the technique of catching pilchards with the ring net; comparisons between the ring-net and drift-net method.

Suggestions for introduction of the ring net to Cornwall are offered by the authors. In addition, the report gives some biological observations on the distribution of pilchards, age and length, maturity, etc. In their summary, the authors stated that by day the pilchards were difficult to catch in a ring-net, but at night the concentrations were suitable for this type of gear. The ring net caught a larger proportion of the smaller pilchards than the drift net, which is selective in its operation. A sketch and complete specifications of a ring net considered suitable for this fishery are included.

"Fish Farming in Israel," article, Fisheries Bulletin, March-April 1950, vol. III, no. 2, pp. 32-3, processed, 30 cents per issue. Food and Agriculture Organization of the United Nations, Washington, D. C. Describes fish farming in Israel, giving carp production 1939 through 1946 and for 1948, area of carp ponds, and experiments being carried on to increase the carp yield and to reduce the expenses of production.

The General Agreement on Tariffs and Trade (Negotiations Beginning September 1950 Under the Trade Agreement Act of 1934 as Amended and Extended), Publication 3819, Commercial Policy Series 126, 92 p., processed. Department of State, Washington, D. C., April 1950. (For sale by Superintendent of Documents, Washington 25, D. C. at 25 cents each.) This publication contains the United States intention to undertake trade-agreement negotiations; notice by the Interdepartmental Committee on Trade Agreements; Tariff Commission notice of tariff and commodity information pertinent to pending trade-agreement negotiations; list of articles imported into the United States which it is proposed should be considered in trade-agreement negotiations (includes fishery and allied products); and other notices issued by the Committee for Reciprocity Information.

Indo-Pacific Fisheries Council Proceedings
(1st Meeting, 24th-31st March, 1939,
Singapore), 143 p., illus, printed.
Food and Agriculture Organization of the
United Nations, Washington, D. C. Divided
into four sections—Section 1 deals with a
report of the proceedings; Section 2, working papers; Section 3, contributed papers;
Section 4, symposium. Included in Section
2 are the following: Programme of Statistical Work; Report of the Fisheries Technology Committee; A Programme of SocioEconomic Research for the Fisheries of
South-East Asia; Fish Marketing in Batavia;
and recommendations of Technical Committee
I and II. Section 3 includes the following
contributed papers: Indian Fisheries;
Korean Fisheries—Their Present and Future;
The Problems of Fish Storage and Refrigera-

THESE PUBLICATIONS ARE <u>NOT</u> AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE <u>OBTAINED</u> <u>FROM THE AGENCIES</u> <u>ISSUING THEM.</u>

tion in South East Asia; General Review of Fish and Fish Culture in the Continental Waters of Indo-China and Projected Programme of Work; and An Outline of a Preliminary Survey of the Socio-Economics of the Fishing Industry of Hong Kong. Section 4 consists of the following symposium papers: A Survey of the Pelagic Fisheries of the World; Methods of Biological Research on Pelagic Fish Resources; and Development of Pelagic Fisheries.

Report of the 5th Session of the Conference
(Washington, D. C., U.S.A., 21 November6 December 1949), 105 p., printed. Food and
Agriculture Organization of the United Nations, Washington, D. C., March 1950. Discusses the 1949 Conference of FAO. It includes procedure and cognate matters; world
review and outlook; technical activities of
FAO (including fisheries); technical assistance to underdeveloped areas; constitutional,
administrative, and financial questions;
officers of the Fifth Session of the Conference, together with delegates; and other
matters of the Conference.

"Philippine Solar Salt Industry," by Wm. S.

Hamm and Arthur Avery, article and separate,
The Philippine Journal of Science, March
1949, vol. 78, no. 1. Institute of Science,
Manila, Philippines, 1949. This article
describes the present methods used to produce salt in the Philippines by the solar
process and how the locally-produced salt
has a deleterious effect on the fish preserved with it. Then it describes the
California process, and the authors recommend
that serious consideration should be given
to the application of the California method
of salt production in the construction of
new salts works in the Philippines.

Preliminary Annual Report of the Maritime Fisheries, 1942 (Quebec), No. 91, 29 p., processed. Fisheries Branch, Bureau of Statistics, Department of Trade and Commerce, Quebec, Quebec. This publication gives data on landings and value of fishery products by species; by districts; catch and utilization of the chief commercial varieties; by species and districts; by species and counties; by species and subdistricts; average fishermen's prices for the chief commercial varieties; and related statistics. Comparative figures for 1947 and 1948 and a textual summary are also included.

Seventh Report to Congress of the Economic Cooperation Administration (For the Quarter
Ended December 31, 1949), 168 p., printed,
40 cents. Economic Cooperation Administration, Washington, D. C., May 1950. (For
sale only by Superintendent of Documents,
Washington 25, D. C.) Reports on the activities under the Economic Cooperation Act of
1948 as well as the programs of economic aid
to China and to the Republic of Korea for the

quarter ended December 31, 1949. Edible fishery products are specifically listed as a group in some of the tables.

Small-Boat Harbors and Shelters, Pacific Coast, Coast of California, Information Pamphlet, 1949, 282 p., illus., printed. Office of the Division Engineer, South Pacific Division, Corps of Engineers, U. S. Army, Oakland Army Base, Oakland, Calif. (For sale by the Corps of Engineers, United States Army, at \$1.00 per copy). This book, which contains a compilation of data concerning small-craft harbors, anchorages, and points of refuge along the coast of California and in San Francisco, Los Angeles, Long Beach and San Diego Bays, was prepared for the information and use of small-boat operators. Small-craft owners and operators often request information concerning harbors suitable for small-craft navigation on the Pacific coast in the State of California. The information sought has generally concerned the location and depths of harbors, protection afforded, sea and weather conditions, services and facilities available, anchorage and restricted area regulations, shore transportation facilities, etc. The purpose of this book is to present as much pertinent small-craft harbor information as practicable, for convenient reference. area covered is the Pacific coast from the Oregon-California State line to the Mexican boundary, including the shore lines of San Francisco and San Diego Bays, Los Angeles and Long Beach Harbors, the Santa Barbara Islands, and the Offshore Islands. Maps and detailed descriptions of small-craft harbors ports of refuge, and anchorage areas, as well as data on sea and weather conditions, and Federal improvements, if any, etc., are in-cluded in this publication. An effort has been made to give the latest data on highways, railroads, and interurban and bus lines serving the various harbors. Pamphlets similar in scope are being prepared to cover harbors along the North Pacific Coast by the Division Engineer, North Pacific Division, Corps of Engineers, U. S. Army, Portland, Oregon.

United States Imports of Merchandise for Consumption (Commodity by Country of Origin), Calendar Year 1949, Report No. FT 110, 177 p., processed, 60 cents. Bureau of the Census, U. S. Department of Commerce, Washington, D. C., April 1950. (For sale by U. S. Department of Commerce at Washington, its field offices, or the Superintendent of Documents, Washington 25, D. C.) This publication contains a compilation of all United States imports of all commodities (including fishery products) for consumption, including country from which shipped, quantity, and value.

World Fisheries Abstracts (A bimonthly review of technical literature on fisheries and related industries), January-February 1950, vol. 1, no. 1, 44 p., printed; Accompanied by Hand-

book for World Fisheries Abstracts, 158 p. Published bimonthly in English, French, and Spanish. Annual subscription is \$4.00; single copy 75 cents; handbook supplied with subscription but single copies available at 75 cents; specify language edition desired. Food and Agriculture Organization of the United Nations, *Ashington, D. C., 1950. This publication contains abstracts of technical articles from periodicals and serial publications, published laboratory reports, Government bulletins, and other publications

containing information of importance to fisheries throughout the world. Printed in a form suitable for cutting and card-filing the individual abstracts. The cards can be filed according to one of the three filing systems for which they are coded—universal decimal classification system, U. S. Fish and wildlife Service system, and subject heading system. Detailed descriptions of these classification systems and directions for filing of the abstracts are given in the Handbook.



CONTENTS, CONTINUED

PAGE		
BREIGN (CONTD.):	FOREIGN (CONTD.):	
(CELAND (CONTD.):	SOMALILAND PROTECTORATE (CONTD.):	
UNITED STATES FISHERIES EXPERT TO ADVISE	FISH CANNERY ESTABLISHED 80	
ICELAND'S FISHERIES INDUSTRY 68	SPAIN:	
INDOCHINA (FRENCH):	SPANISH SYSTEM OF DRAGNET FISHING BY PAIRS 81	
REVIEW OF THE FISHERIES, 1949 69	SPANISH MOROCCO:	
ITALY:	FISHING INDUSTRY, 1949 84	
ITALIAN VESSELS LEAVE FOR NEWFOUNDLAND	UNITED KINGDOM:	
BANKS 70	NEW TRAWL FLOAT DEVELOPED 85	
JAPAN:	RESEARCH VESSEL INVESTIGATES BEST WATER	
PRICE AND DISTRIBUTION CONTROLS ON FISH	TEMPERATURES FOR FISHING COD 85	
LIFTED 70	INTERNATIONAL:	
STATUS OF FISH PROCESSING PLANTS 70	FAO COUNCIL MEETS IN ROME 86	
REPORTED VISIT TO JAPAN OF UNITED STATES	POLAND WITHDRAWS FROM THE FAO 86	
FISHERIES GROUP 71	WORLD PRODUCTION OF MARINE OILS, 1949 87	
KENYA PROTECTORATE:	FEDERAL ACTIONS: 89	
DEMAND FOR FISH EXCEEDS SUPPLY 71	FOOD AND DRUG ADMINISTRATION:	
MALAYA (INCLUDING SINGAPORE):	PROPOSES TO EXTEND SEAFOOD INSPECTION SER-	
REVIEW OF THE FISHERIES, 1949 72	VICE TO INCLUDE FRESH AND FROZEN SHRIMP 69	
COLONY OF MAURITIUS:	INTERSTATE COMMERCE COMMISSION:	
VESSEL WITH QUICK-FREEZING FACILITIES TO	RAILWAY EXPRESS CANCELLATION OF SCHEDULES	
FISH IN INDIAN OCEAN 72	INCORPORATING INCREASE IN ICE CHARGES	
NORWAY:	POSTPONED 90	
REVIEW OF THE FISHERIES, 1949 74	DEPARTMENT OF STATE:	
INTEREST IN EXPORTING FROZEN ROSEFISH	FOURTH SESSION ON GENERAL AGREEMENT ON	
FILLETS TO U. S. INCREASING 77	TARIFFS AND TRADE ENDS AT GENEVA 90	
CANNED HERRING-SARDINES DEVELOPED TO COM-	INDO-PACIFIC FISHERIES COUNCIL MEETS AND	
PETE WITH BRISLING-SARDINES 77	UNITED STATES DELEGATES DESIGNATED 91	
GOVERNMENT TO BUILD FISH PROCESSING PLANTS 77	EIGHTY-FIRST CONGRESS (SECOND SESSION):	
EXPERIMENTS WITH STORAGE SILOS FOR FISH 78	APRIL 1950 92	
VACUUM PUMP FOR DISCHARGING HERRING 78	GRAPHS: 94	
FISHING INDUSTRIES TO RECEIVE ELECTRONICS	LANDINGS AND RECEIPTS 94	
INFORMATION FROM UNITED STATES 79	COLD STORAGE HOLDINGS AND FREEZINGS OF	
COD FISHERY RESEARCH 79	FISHERY PRODUCTS	
NORWEGIAN-GREEK TRADE AGREEMENT 79	CANNED FISHERY PRODUCTS 96	
FORTUGAL:	PRICES, IMPORTS AND BYPRODUCTS 97	
NEW VESSEL ADDED TO FISHING FLEET 80		
SOMALILAND PROTECTORATE:	FISH AND WILDLIFE SERVICE PUBLICATIONS 98	
STATUS OF THE FISHERIES 80	MISCELLANEOUS PUBLICATIONS	

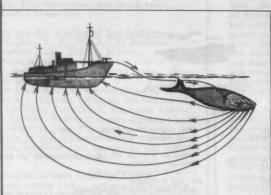
Processing -- Miscellaneous Service Division

Illustrator -- Gustaf T. Sundstrom

Compositors -- Jean Zalevsky, Betty Cady

GERMAN COMMERCIAL ELECTRICAL FISHING DEVICE

Fishery Leaflet 348, German Commercial Electrical Fishing Device, contains the details available to date on the German electrical fishing device. The inventor, a German physicist, reasoned that fish could be caught by placing two electrodes into the water and putting a varying positive voltage on one electrode. The positive voltage on this electrode (the ancde) would cause the fish to point towards it. The varying electric field along the spine of the fish would cause the tail muscles to contract and relax, moving the tail and propelling the fish into a net near the ancde.



COURSE OF CURRENT IN ELECTROCUTION OF WHALE.

The Bremerhaven equalization-fund tax (derived from taxes imposed on the German fishing industry) has assigned \$14,280 to be used to finance research on electro-fishing.

This 16 page leaflet contains a report on the German commercial electrical fishing device as well as translations of the following articles concerning electrical fishing methods which were published in a German periodical:

Electric Fishing at Sea?; Use of Electro-Physiological Effects in Ocean Fishing; Experiences with Electric Fishing in Inland Waters; Electrocution of Whales; and On Electrocution of Whales.

Free copies of this publication are available upon request from the Division of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.

Michigan.

128D

Ann Arbor.

University of Michigan General Library.

Permit No. 1015

Permit No. 1015

Permit No. 1015

DANTED STATES

FISH AND WILDLIFE SERVICE

WASHINGTON 25, D. C.

